



# **ACM India**

# **Annual Report**

# **2020-21**

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## About ACM

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.

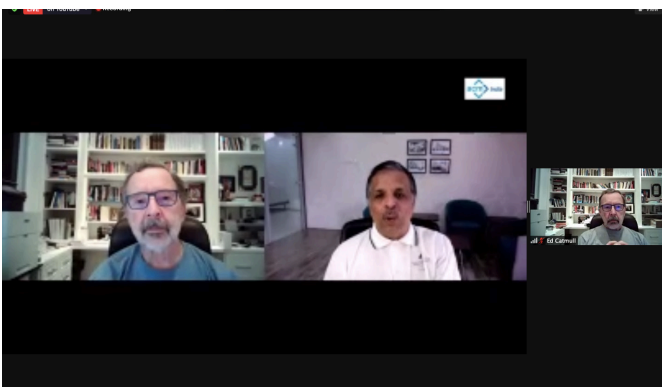
## EVENTS ORGANIZED

### The ACM India Annual Event 2021

-Jayant Haritsa

ACM India has been organizing annual flagship events to discuss trends in science and technology, and to celebrate ACM's spirit and India's accomplishments in computing. This event is attended by ACM Turing laureates, ACM office-bearers, professionals, researchers and students in computer science and allied areas. The 2021 edition of the **ACM India Annual Event** was held in **virtual mode** (due to the pandemic) on **February 13th** at PSG College of Technology, Coimbatore. Taking advantage of the virtual mode, the event was held over an entire day to accommodate the various time zones of the keynote speakers, and was also thrown open to the public at large with completely free registration.

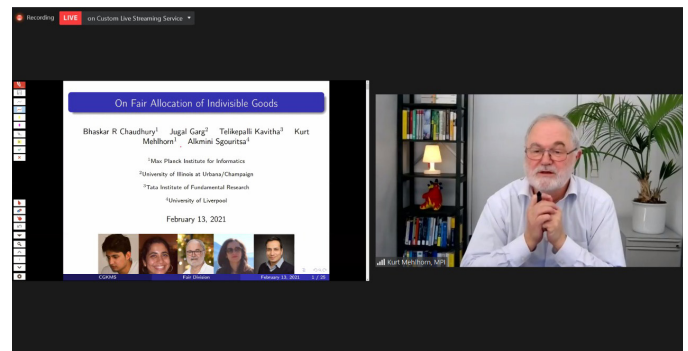
The day-long event kicked off with a stimulating fireside chat with Dr. Edwin Catmull, who received the 2019 Turing award for his pioneering work on computer graphics for the motion picture industry. The interview was compered by Prof. P J Narayanan, Director of IIIT Hyderabad, former ACM India President, and a veteran graphics researcher. Their wide-ranging talk covered considerable ground from Dr. Catmull's early student years to the frontline position in Pixar and Walt Disney Studios, and seamlessly brought out both his technical magic and the persona behind it.



The second keynote featured **Prof. Milind Sohoni** of IIT Bombay, who spoke about how our students need to internalize an interdisciplinary mindset to holistically address future societal challenges. That is, computing engineers need to view themselves as agents of social change and entrepreneurs, not just employees in the software industry. He evangelized this worldview

through the deceptively simple but conceptually deep exemplar of public transport.

Later in the day, we were treated to an illuminating theoretical exposition on the fair division of discrete goods by **Prof. Kurt Mehlhorn**, Director, MPI Informatics, Germany. He covered a variety of problem formulations and brought the audience abreast of the latest results in these diverse scenarios. In particular, he showed that approximating fairness through the notion of *envy-freeness up to any good* (the so-called EFX problem) could result in practical solutions for common valuation mechanisms.



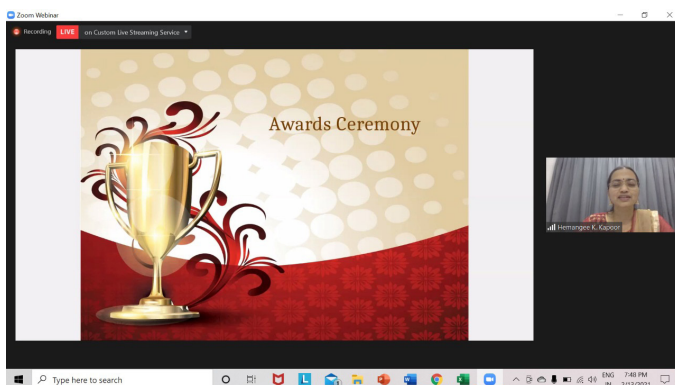
Finally, **Prof. Amanda Randles**, a Grace Murray Hopper awardee from Duke University, provided a captivating ringside view of how high-performance computing could be effectively leveraged for patient-specific modeling of blood flows, a critical input for identifying disease progression and customization of surgical planning and drug delivery systems. She presented the design and development of Harvey, a parallel fluid dynamics application designed to model hemodynamics in patient-specific geometries, and how such models could address a range of health applications.

In the late evening session, which was expertly compered by **Prof. Hemangee Kapoor** (IIT Guwahati and ACM India Vice President), the agenda began with a succinct report on the ACM India activities by **Prof. Jayant Haritsa** (IISc Bangalore and ACM India President). He introduced the audience to the new Council, and explained how the current scale of operations motivated the creation of a streamlined organizational framework that evolved from the earlier largely volunteer-driven phase. Under this restructuring effort, eleven committees were set up, with each Council member chairing a committee, and a designated member of the Execom serving as the

liaison to the committee.

Prof. Haritsa then surveyed recent initiatives undertaken by ACM India in computing education, research, professional development, recognition, networking, gender equality, pedagogy, assessment, policy contributions, and industry-academia alliances. In particular, he highlighted the introduction of major new awards celebrating outstanding educators, women contributors, and early career researchers. Also, a new PhD Clinic for mentoring research students from developing institutions on a sustained and one-on-one basis by experts in academia and industry.

The new ACM President, **Prof. Gabriele Kotsis** (JKU Austria), then gave an international perspective of ACM, relating to its core objectives of advancing computing as both a science and a profession. She highlighted how computing advances have helped negotiate the pandemic and facilitated the continuation of our work despite the external crisis. She stressed the diversity, equity and inclusion goals of ACM, and the need to create a role model for ethical and socially responsible computing. Major activities planned for the ACM Digital Library include improved exploration and interaction with supplementary content and metrics, and making it fully open access within the next few



years. She concluded by emphasizing how computing machinery shapes our future, including fighting the carbon footprint, improving medical research and health care, and protecting democracy.

The above presentations were followed by the eagerly awaited award ceremony, which is described in detail later in this report. This time, apart from the usual Distinguished Doctoral Dissertation and Best Student Chapter awards, the first recipients of the newly instituted awards (Education, Women Contributor, Early Career Research) were also felicitated.

The closing remarks and vote of thanks were delivered by **Prof. Venkatesh Raman** (IMSc Chennai and Secretary/Treasurer ACM India), ending the day's program on a high note.

The event witnessed a large participation from stu-

dents, researchers, faculty members, and professionals from all over India and abroad. More details of the event, including all the presentation videos, are available at the [event website](#).

## ARCS 2021

- Meenakshi D'Souza

The 15th Academic Research and Careers for Students (ARCS) Symposium, formerly, IRISS, was held virtually 11-12 February 2021, hosted by PSG College of Technology, Coimbatore, India. ARCS Symposium has been providing a forum for research scholars in Computer Science to present their published research work to a conclave of researchers from academia and industry, potential recruiters and fellow research scholars.

One of the highlights of ARCS are presentations by research scholars (oral presentations and posters) that are selected after review by a program committee. This year's program committee chair, Prof. Saket Saurabh (IMSc, Chennai), and the committee members, received 65 submissions (of work that was published at conferences/journals) and 14 of them were selected for full presentations, 9 for short presentations and 13 for posters which were given as speed talks. Given that the Symposium was held virtually, we received upward of 350 registrations for the Symposium, including the research scholars who were presenting their work.

Apart from the above contributed oral presentations, the highlight of the first day were the two presentations by the winners of ACM India Early Career Researcher Awards, Prof. Saket Saurabh of IMSc (who also was the PC chair of the ARCS 2021 Symposium!) and Prof. Uday Reddy Bondhugula of IISc. First day also featured five motivational talks on their career interests and prospects in their field by five early career researchers spanning academia, industry and start-ups. This session featured talks by Gayathri Ananthanarayanan (IIT Dharwad), Praphul Chandra (KOINEARTH), Kuldeep S. Meel (NUS, Singapore), Rijurekha Sen (IIT Delhi) and Divy Thakkar (Google Research). A panel discussion on Diversity and Inclusivity in Research moderated by Prof. Neeldhara Mishra (IIT Gandhinagar) witnessed insightful discussions on the topic by the eminent panelists Ranjita Bhagwan (Microsoft Research), R. Ramanujam (IMSc, Chennai) and Venkatakrisnan Ramaswamy (BITS, Pilani).

The second day began with a keynote by Prof. Sunita Sarawagi, IIT Bombay on "Machine Learning Models: The Challenges of Real-World Deployment" with a record number of more than 400 virtual attendees and a record number of questions to the speaker. Contributed talks from research scholars continued on the second day, with posters and discussions hosted on a dedicated virtual platform for their interactions with other attendees.

An exclusive Industry Awareness Panel Discussion for the sponsors was organized on the topic Industry Research in the Post-Pandemic World, moderated by Manish Gupta (Google Research) and the panelists were Gautam Shroff (TCS Research), Pari Natarajan (Zinnov), Shalini Kapoor (IBM AI Apps), Sriram Rajamani (Microsoft Research India) and Suparna Bhattacharya (HP Enterprise). Another highlight of the second day were presentations by winners of the ACM India Doctoral Dissertation Awards— Shikhar Vashishth (IISc, Bangalore / CMU, USA) for his thesis titled Neural Graph Embedding Methods for Natural Language Processing and Roohani Sharma (IMSc, Chennai/ MPII, Germany) for her thesis titled Advancing the Algorithmic Tool-kit for Parametrized Cut Problems.

The Symposium ended with an Ask me Anything session where several PC members and other attendees from industry answered a spectrum of questions from enthusiastic research scholars who stayed on to interact with them. The event website (<https://event.india.acm.org/ARCS/2021/>) has details of the various contributed talks, posters and all the other events.

## ACM India Awards - 2020

- Pankaj Jalote

While the computing community in India is quite strong, there is a dearth of India specific awards of international repute, dedicated to recognize significant contribution to Computing. In addition to acknowledging such contributions from India, such awards will provide international visibility to computing contributions from India, inspire others to scale further heights in the field and prepare them for candidature at world/ACM level. Towards this, ACM India launched a few new individual awards – ACM India Early Career Researcher (ECR), Outstanding Contributions in Computing by a Woman (OCCW), Outstanding Contribution to Computing Education (OCCE).

These awards will supplement the existing awards from ACM India: Doctoral Dissertation Award. More information about ACM India awards can be found at <https://india.acm.org/awards>.

An ACM India awards committee was also established to oversee the process of awarding the awards, as well as establishing of new awards, as and when needed. The current steering committee is:

- ❖ Supratik Chakraborty, Professor, Indian Institute of Technology Bombay
- ❖ Anand Deshpande, Chairman and MD, Persistent Systems Ltd.
- ❖ Jayant Haritsa, Senior Professor, Indian Institute of Science (IISc) Bangalore
- ❖ Pankaj Jalote (Chair) Distinguished Professor, Indraprastha Institute of Information Technology (IIIT) Delhi
- ❖ Hemant Pande, Executive Director, ACM India

Council

- ❖ Sriram Rajamani, MD, Microsoft Research India
- ❖ Chandrashekhar Sahasrabudhe, Chief Operating Officer, ACM India Council

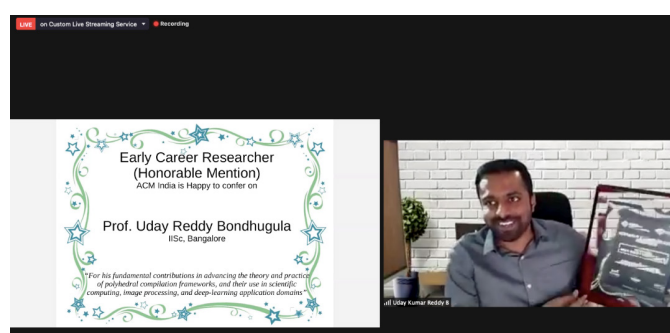
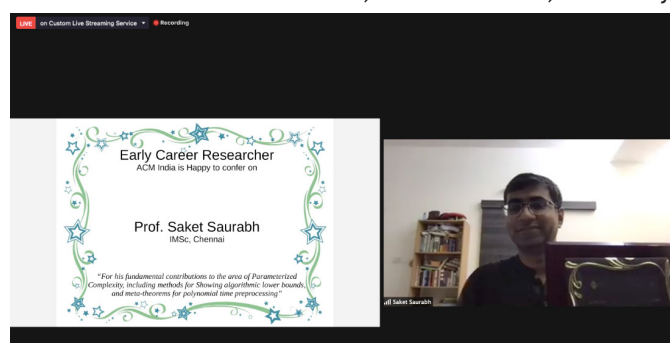
The various awards, their jury, and the winners for 2020 are given below.

### Early Career Researcher Award

In order to recognize outstanding technical or professional contribution to the field of Computing from India, ACM India Council has instituted the annual ACM India Early Career Researcher (ECR) Award starting 2020. The ECR award is given to individual in early stage of career, having made fundamental, innovative, impactful contribution to the field primarily working from India. The award carries a prize amount of be Rs1,500,000 (Rupees One Million and Five Hundred Thousand, approx USD21,000). Persistent Systems Foundation has generously agreed to provide financial support for this award.

Selection Committee (Jury) for ECR was:

- ❖ Vipin Kumar, Regents Professor and William Norris Endowed Chair, University of Minnesota
- ❖ Venkat Padmanabhan, Deputy Managing Director, Microsoft Research India
- ❖ Jaikumar Radhakrishnan, Senior Professor, Tata Institute of Fundamental Research, Mumbai
- ❖ Sunita Sarawagi, Institute Chair Professor, IIT Bombay
- ❖ S. Sudarshan (Chair), Subrao M. Nilekani Chair Professor, IIT Bombay
- ❖ Moshe Vardi, University Professor, Karen Ostrum George Distinguished Service Professor, Rice University
- ❖ Gerhard Weikum, Scientific Director, Max Planck Institute for Informatics, Saarbruecken, Germany



Saket Saurabh was chosen as [Recipient of 2020](#). As a special case for the first year, an Honorable Mention was given to Uday Reddy Bondhugula. Saket was recognized for his fundamental contributions to the area of Parameterized Complexity, including methods for showing algorithmic lower bounds, and meta-theorems for polynomial time preprocessing. Uday was recognized for his fundamental contributions in advancing the theory and practice of polyhedral compilation frameworks, and their use in scientific computing, image processing, and deep-learning application domains.

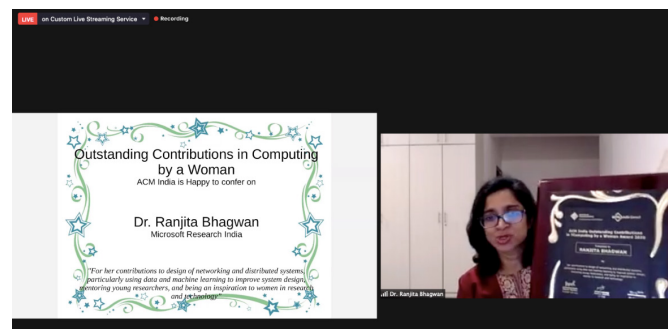
Saket is Professor of Theoretical Computer Science at the Institute of Mathematical Sciences, Chennai. Uday is Associate Professor in the Department of Computer Science and Automation, Indian Institute of Science.

### Outstanding Contributions in Computing by a Woman (OCCW) Award

The ACM India Outstanding Contributions in Computing by a Woman (OCCW) Award recognizes women professionals who have made fundamental, innovative, impactful contributions to the computing field primarily working in India. The award carries a prize of ₹7 lakhs (approximately USD \$10,000). Financial support for this award is provided by Google.

Selection Committee (Jury) for OCCW was:

- ❖ Neelam Dhawan (Chair) Head, IBM India Advisory Board
- ❖ Sandhya Dwarkadas Professor and Chair, Department of Computer Science, University of Rochester
- ❖ Niloy Ganguly Professor, IIT Kharagpur
- ❖ Geetha Kannan Founder and CEO, Wequity
- ❖ Shwetak Patel, Washington Research Foundation Entrepreneurship Endowed Professor, University of Washington
- ❖ Balaraman Ravindran, Professor, IIT Madras
- ❖ Barbara Ryder, Professor Emerita, Department of Computer Science, Virginia Tech
- ❖ Gaurav Sharma, Vice President, IBM Cloud and Cognitive Software



Dr. Ranjita Bhagwan has received the ACM India Outstanding Contributions in Computing by a Woman [Award for 2020](#). Ranjita was recognized for “her

contributions to design of networking and distributed systems, particularly using data and machine learning to improve system design, mentoring young researchers, and being an inspiration to women in research and technology.” Ranjita is currently a Senior Principal Researcher at Microsoft Research India.

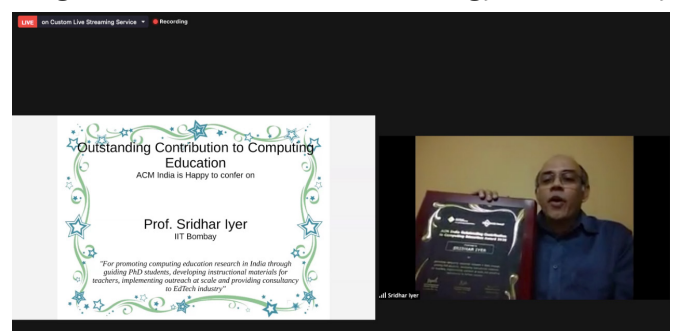
### Outstanding Contribution to Computing Education (OCCE) Award

The ACM India Outstanding Contribution to Computing Education (OCCE) Award recognizes individuals who have made fundamental, innovative and impactful contributions to computing education in India. The award carries a prize of ₹7 lakhs (approximately USD \$10,000). Financial support for this award is provided by Microsoft Research India.

Selection Committee (Jury) for OCCE was:

- ❖ M. Balakrishnan, Professor, IIT Delhi
- ❖ Manish Gupta, Director, Google Research India
- ❖ Deepak Phatak (Chair), Professor Emeritus, IIT Bombay
- ❖ Susan Rodger, Professor of the Practice of Computer Science, Duke University
- ❖ Anil Sahasrabudhe, Chair, All India Council for Technical Education
- ❖ Sartaj Sahni, Distinguished Professor, University of Florida, Gainesville

Sridhar Iyer Selected for the [OCCE 2020 Award](#). Sridhar was recognized for “promoting computing education research in India through guiding PhD students, developing instructional materials for teachers, implementing outreach at scale and providing consultancy to EdTech industry.” Sridhar is a Professor in the Department of Computer Science and Engineering and Head of the Interdisciplinary Programme on Educational Technology at IIT Bombay.



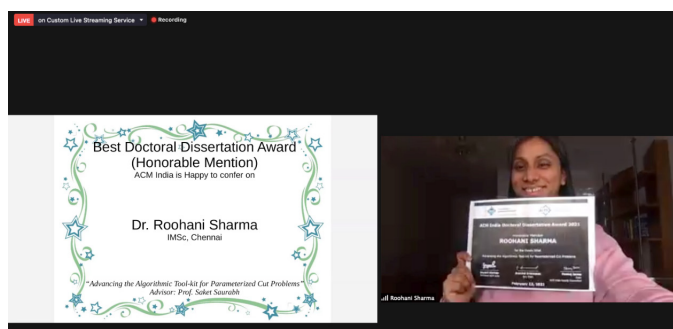
### Doctoral Dissertation Award (DDA)

The ACM India Doctoral Dissertation Award was established in 2011 by ACM India. This award recognizes the best doctoral dissertation in Computer Science and Engineering from a degree-awarding institution based in India for each academic year. The ACM India Doctoral Dissertation Award is accompanied by a prize

of ₹2,00,000. An honorable mention award, if any, is accompanied by a prize of ₹1,00,000. The award winning dissertation(s) are published in the ACM Digital Library. Tata Consultancy Services Limited (TCS) is the founding sponsor of the ACM India Doctoral Dissertation Award.

ACM India Doctoral Dissertation Award Committee Members for 2021 were

- ❖ Aravind Srinivasan (Chair)
- ❖ Suman Banerjee
- ❖ Shuvra Bhattacharyya
- ❖ Furong Huang
- ❖ Gopal Pandurangan
- ❖ Madhusudan Parthasarathy
- ❖ Abdul Quamar
- ❖ Anup Rao
- ❖ S. S. Ravi
- ❖ Venkatesh Srinivasan
- ❖ Srikanta Tirthapura
- ❖ Anil Vullikanti



Shikhar Vashishth of Indian Institute of Science has received the ACM India Council’s 2021 Doctoral Dissertation Award for “Neural Graph Embedding Methods for Natural Language Processing.” Honorable Mention went to Roohani Sharma of Institute of Mathematical Sciences, for “Advancing the Algorithmic Tool-kit for Parameterized Cut Problems.”



### Student Chapter Awards

This category of awards recognizes those student Chapters which have excelled in promoting the spirit of ACM through conduct of a large number of technical and non-technical activities in their campus. Besides that adequate representation from Students chapters

in activities organised by ACM India council also helps them in scoring more points to be contenders to win these awards.

Following were members of jury team for Students Chapters awards

- ❖ Shekhar Sahasrabudhe, Chief Operating Officer, ACM India Council
- ❖ Abhijat Vichare, Consultant, ACM India
- ❖ Rajnish Sharma (Chair), Dean (Research), Chitkara University

Total 34 nominations were received in total from all parts of the country, out of which, 14 were shortlisted for final calculation of points scored for conduct and reporting of various activities by chapters. Portal for nomination of awards as well as calculation of points for achievements of chapters was hugely automated on the basis of count of reporting of activities and participation therein.

Finally following chapters were declared as winner, runner up and with Honorable mention awards –

- ❖ Winner: PICT Student Chapter
- ❖ Runner up: Pimpri Chinchwad College of Engineering
- ❖ Honorable mention: Chitkara University

iCertis remained the sponsor for all these awards.

### COMPUTE 2020

ACM-India held the 13th annual COMPUTE symposium at Visvesvaraya National Institute of Technology Nagpur, Maharashtra, India from December 9th to 12th 2020. Since 2018, COMPUTE has focused on the theme of improving the quality of computing education in the country. COMPUTE’20 was the third year of this thematic symposium, and was co-chaired by **Prof Viraj Kumar** (Dayananda Sagar University) and **Prof Venkatesh Raman** (IMSc Chennai) A total of 6 papers were selected for presentation after peer review. In view of the prevailing pandemic, the entire event was held online.

The symposium was preceded by a 2-day workshop on **Algodynamics: Teaching Algorithms using Interactive Transition Systems**, led by Prof Venkatesh Choppella (IIIT Hyderabad).

The 4-day main symposium was inaugurated by Prof Pramod Padole (Director, VNIT Nagpur) and featured an invited lecture by the ACM India **Outstanding Contribution to Computing Education Awardee** Prof Sridhar Iyer (IIT Bombay). This was followed by a workshop led by Prof Iyer and Dr Shitanshu Mishra (IIT Bombay) on **Designing & Conducting Research Studies**.

The second day of the symposium featured the first keynote by Prof Casey Fiesler (University of Colorado Boulder, USA) on Ethics Integration in Computing Education. This was followed by three invited talks,

by Dr R Venkatesh (TCS Research Pune) on **Verifying Programming Assignments Involving Arrays**, by Prof Amey Karkare (IIT Kanpur) on **Prutor: A system for automated tutoring of introductory programming courses**, and by Kavya Alse (IIT Bombay) on **Writing research papers in CS Education**. This was followed by three paper presentations. Finally, the day ended with a keynote by Dr Ricardo Caceffo (Univesp, Brazil) on **Learning How to Program in Python CS1 courses: What We Know and Challenges for Students and Instructors**.

The third day started with invited talks by Prof Varsha Apte (IIT Bombay) on **Online Assessment: Challenges and Opportunities**, Manish Jain (IIT Gandhinagar) on **Engagement in Online STEM Learning: a Case Study of 3030-STEM**, Viral Shah (TCS ION) on **Inside the Next Generation Assessment**, Prof Andrew Thangaraj (IIT Madras) on **Teaching computing at large scale - from NPTEL to IITM's new online degree**, and by Prof Venkatesh Choppella (IIIT Hyderabad) on **Virtual Labs: Insights, Initiatives and building a Community**. This was followed by a panel discussion on **National Education Policy & Implications for CS Education**, featuring the following panelists: Prof R Ramanujam (IMSc Chennai), Prof Pankaj Jalote (IIIT Hyderabad), Sonia Garcha (CSPathshala), Venkatraman Umakanth (FutureSkills, NASSCOM), and was moderated by Prof Viraj Kumar.

The final day of the symposium kicked off with an industry panel discussion on **Industry Academia Collaboration and Beyond**, moderated by Hemant Pande (Executive Director, ACM India). The panelists were: Sameer Bendre (Persistent Systems), Hemant Gadgil (Dassault Systèmes Foundation India), Raju Goteti (Co-Innovation Network, TCS), Anil Nair (Cisco), Pranali Save (Icertis), and Ashwani Sharma (Google Research). The symposium closed with three paper presentations, and presentations of collaborative research projects in CS education by Prof Chitra Babu, Prof Viraj Kumar, Prof Venkatesh Choppella, and Dr Shitanshu Mishra.

Each day featured breakout sessions where participants engaged in open-ended conversations with experts in specific domains: Prof Abhiram Ranade (IIT Bombay), Prof Venkatesh Raman (IMSc Chennai), Dr Venkatesh R, (TCS), Prof Viraj Kumar (Dayananda Sagar University), Prof Sridhar Iyer (IIT Bombay), Venkatesh Choppella (IIIT Hyderabad), Dr Ricardo Caceffo (Univesp, Brazil), Prof Madhavan Mukund (CMI), Prof Neeldhara Misra, (IIT Gandhinagar), and Prof Chitra Babu (SSN College).

## Summer/Winter Schools

- Venkatesh Kamat

One of the key initiatives of ACM India in the education space is the ACM India Summer/Winter School

Program. The objectives of these schools are:

- ❖ Inculcating problem solving as a skill.
- ❖ Providing exposure to leading experts, advanced topics, and taste of research to motivated students.
- ❖ Exposing students to research opportunities in the career, whether in academia or industry.
- ❖ Connecting students to potential advisers for research opportunities.
- ❖ Conduct one special school for women candidates in the contemporary research topic.
- ❖ Connecting research communities working in an area for potential collaborations.

Salient Features of the Schools:

- ❖ Organized at multiple geographical regions in the country.
- ❖ Conducted by faculty comprising leading experts from academia and industry on advanced topics in computing.
- ❖ Target audience:
  - senior undergraduate students or those enrolled in master's or higher degree programs
  - around 40 students per school: from nationwide applicants, selected based on academic performance, Statement of Purpose etc. criteria
- ❖ 1 to 2 weeks full-time course in June-July or December-January
- ❖ Hosted at an academic institution.
- ❖ Sponsored by industry partners with industry personnel participating as resource persons.

For the Summer of 2020, the following 5 schools were announced in the month of March. These schools were supposed to be held at the host institute in the physical mode. However, looking at the pandemic situation in the country, we decided to cancel these schools.

Title	Host Institute	Industry Sponsor
Programming Language Analysis and Optimization	IIT Hyderabad	NVIDIA Graphics
Cybersecurity	VIT Vellore	Cisco India
Fairness, Accountability and Transparency in AI	IIT Kharagpur	IBM Research India
Algorithms for Big Data and ML	IMSc Chennai	Microsoft Research India
Computer Architecture and Operating Systems	IIT Goa	Intel Labs
Natural Language Processing (for Women only)	DA-IICT Gandhinagar	Amex AI Labs



Later we realized that the pandemic is not going to go away soon. By August/September 2020, all the academic institutions in the country had started to teach in online mode. Hence in the month of October, we decided to announce the following four Winter Schools in online mode. Three of these schools were sponsored by the industry.

Dates	Title	Host Institute	Industry Sponsor
21 to 31 December	Cybersecurity	VIT Vellore	Cisco India
28 December to 9 January	Algorithms for Big Data and ML	Institute of Mathematical Sciences (IMSc) Chennai	Microsoft Research India
4 to 15 January	Natural Language Processing (for Women only)	DA-IICT Gandhinagar	
11 to 22 January	Fairness, Accountability and Transparency in AI	IIT Kharagpur	IBM Research India

All together we received 255 applications for the winter school out of which 225 candidates registered for one of the schools. Number of applications we received were much less as compared to normal circumstances, but this was partly attributed to the disturbed academic schedules across various academic institutions due to the pandemic. The feedback from the school was mixed and a learning experience for the committee. Accordingly, we revised our Summer/Winter School guidelines for organizing school in online mode. On the financial front, the cost of organizing the school in online mode was found to be almost one tenth of the cost of organizing the same in physical mode. The sponsorship amount and registration fees were just enough to cover the cost.

In April 2021, we announced the following 5 Summer Schools in online mode. We also decided to waive off the application fee which normally was charged for all the candidates for submitting their application.

Dates	Title	Host Institute	Industry Sponsor
14-25 June	Shape Modelling	DA-IICT, Gandhinagar	Dassault Systèmes Foundation India
21 June- 2 July	Program Execution	IIT Goa	Hewlett Packard Enterprise

5-14 July	IoT and Embedded Systems (for women only)	IIIT Bangalore	Micron Technology
5-16 July	Natural Language Processing	IIIT Hyderabad	Microsoft
6-16 July	Programming Language Analysis and Optimizations	IIT Hyderabad	NVIDIA

All together we received about 1109 applications. Based on our experience, we decided to be very selective. About 30-50 candidates were selected for each school according to the profile submitted by the candidates. Currently the schools are in progress.

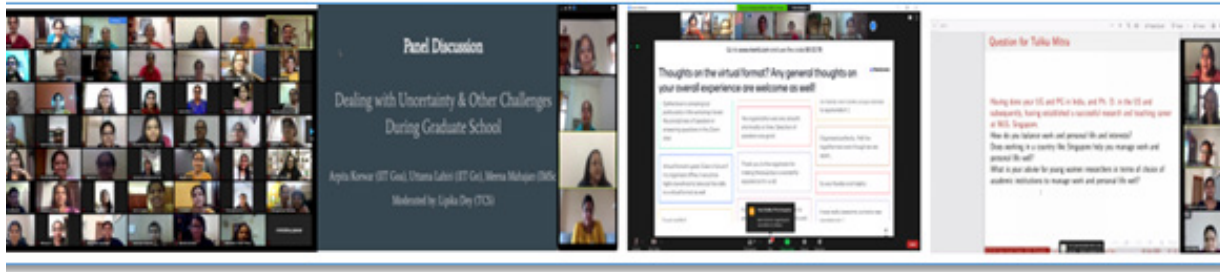
## ACM-W Events

- Heena Timani

### ACM India Grad Cohort Workshop July 24-27, 2021

ACM India Grad Cohort 2020, the third installment of this Pan-India workshop series, was virtually co-organized by the CSE Discipline at IIT Gandhinagar and ACM-W from 24th - 26th July 2020. ACM-W India emphasizes women empowerment in computer-related fields and domains. It focuses on providing a platform for sharing resources, information, ideas, and experiences with its diverse range of activities so that women can effectively tackle the challenges in their computing careers.

The first keynote was delivered by Dr. Sunita Sarawagi (professor at IIT Bombay and the Infosys Prize 2019 winner), during which she talked about the journey of machine learning models, starting from their birth and going all the way to how they are serving the real world in the current times. The next talk was given by Dr. Manik Gupta (faculty, BITS Pilani-Hyderabad), where she provided her perspectives on how women can plan and progress in their computing careers. The key is to embrace womanhood, be focused, work hard, carve our own career paths, and define our own success. In another session, Dr. Bhavana Kanukurthi (faculty, IISc Bangalore) spoke on choosing a research advisor, topic, and group. According to her, the process should be well-planned, align with our skills, and exhibit practical relevance. Dr. Aparna Taneja (software engineer, Google research) described the practical aspects of this topic by sharing experiences and insights from her own thesis and present job responsibility.



Dr. Jaya Sreevalsan Nair (faculty, IIIT Bangalore) gave examples of some eminent minds in various fields and discussed the latest topics of online presence and personal branding. This was followed by a captivating panel discussion that shed light on some aspects of remote working and maintaining a proper work-life balance. The panelists of this session were Dr. Tulika Mitra (Provost’s Chair Professor of Computer Science, National University of Singapore), Dr. Joyce Mekie (faculty, IITGN), Dr. Hemangee Kapoor (faculty, IIT Guwahati), Dr. Rekha Singhal (senior research scientist, TCS) and Dr. Akanksha Agrawal (postdoctoral researcher, Ben-Gurion University, Israel). The second keynote of this event was delivered by Dr. Meena Mahajan (professor, Institute of Mathematical Sciences). An eminent contributor in Discrete Algorithms, Complexity Theory, Matching Theory, Combinatorics, and Proof Complexity, she recounted some interesting experiences from her life and expressed that she grew increasingly fond of theoretical computing with time and proceeded to pursue her Ph.D. in this domain. She described some fascinating facets of this field. The next session was given by Dr. Prajakta Nimbhorkar (faculty, Chennai Mathematical Institute), where she discussed the background preparation (breadth and depth) for Ph.D. With an attendance of more than 195 registered participants (students, researchers, and leading experts from industry and academia), the workshop was a huge success and concluded on an optimistic note. It proved to be an excellent platform for women in computing and its allied areas to build discussion forums with some of the most eminent minds in this field. Several participants voiced their views on how enriching it was to meet their women role-models.

**ACM W India Celebration of Women in Computing - 5th September, 2020**

ACM India celebration of women in computing –a

virtual event was organized by ACM-W India, ACM Nagpur Professional Chapter in association with ACM Nagpur Student Chapter of Yeshwantrao Chavan College of Engineering, Nagpur, Shri Ramdeobaba College of Engineering and Management, Nagpur, Priyadarshini College of Engineering, Nagpur and Persistent Systems Ltd. on 5th September, 2020 under the theme “Covid 19: Innovation in IT”. The inaugural ceremony was started by Dr. Mukta Paliwal Technical Expert of Persistent Systems. Due to the current pandemic, the event was organized in virtual mode on the online platform zoom webinar.

As this event being the flagship event under ACM celebration women in computing Dr. Heena Timani ACM W India Council Chair, envisioned and highlighted the entire operational and key benefits of ACM-W membership and took the opportunity to brief about past events and upcoming events going to be held under the canopy of ACM India. Dr. Heena welcomed Prof. Reyyan Ayfer, Vice-Chair, ACM-W & Professor, Bkent University, Turkey for the keynote address. She contributed her expertise to international committees, most notably as a council member of ACM Europe and as the Founding Chair of ACM Women in Computing Europe Committee. She received the Anita Borg Change Agent Award in 2008 after serving as the ACM-W Ambassador of Turkey for 8 years.

Dr. Reyyan delivered a keynote on “Changes, Challenges, Opportunities”. She discussed some of the success tips and strategies for the budding innovators. Prof. Devishree Naidu, session chair of second keynote introduced Dr. Jaya Sreevalsan Nair from IIIT Bangalore. She leads the Graphics-Visualization-Computing Lab and is one of the core team members of the E-Health Research Centre at IIITB. Her research interests in data visualization, scientific computing, computer graphics.



A panel discussion was organized during AICWiC2020 on the theme "Innovation Opportunities for New Normal during Pandemic". A panel was moderated by Dr. Lipika Dey, Principal Scientist at the TCS Research and Innovation Labs. , faculty at the Department of Mathematics at IIT Delhi. (till 2007).The panelist were Dr. Maya Ingle, Director,DDU-Kaushal Kendra at DAVV Indore, Mrs. Rachna Patrikar,Senior Manager-Enterprise application and emerging technologies, Mahindra and Mahindra),Dr.Manik Gupta, Assistant Professor at BITS Pilani Mrs. Vandana Gupta, Director at Multivirt India Pvt Ltd & FNN Media Pvt Ltd ,28 years of experience in IT industry.

Poster Presentation Competition was part of Virtual Event for celebration of Women in Computing by ACM India. The competition was specially organized for UG/ PG girl students of CS/CE and IT branches to boost innovative ideas. There were a total of three rounds in the poster presentation competition. Education, Health care, Environment / Ecosystem / Waste Management , Age of Sustainable Development (Sustainable Cities and Communities) themes were decided for poster presentation competition. We received maximum posters in Health Care domain. We got good response from various reputed institutes of India, total 105 teams registered for poster presentation competition.

During the final round, each finalists' posters and videos explaining the detailed concept were presented to the audience. This round was followed by a question/ answer session to the poster presenters by judges. Out of 105 groups registered for this competition, 6 groups were shortlisted for the final round. Cash prizes were sponsored by Tata Consultancy Services.1st Prize: Rs.16,000, 2nd Prize: Rs.12, 000,3rd Prize: Rs. 8,000.

### 5th ACM W India National Level Hackathon 19-20 December 2021

5th ACM-W India National Level Virtual Hackathon 2020 started with an ideology to support and motivate the girl students in the field of Computer Science. Initially, it was supposed to be in offline mode but the pandemic situation brought new challenges to overcome and it was finally decided that it will happen in online mode. This event was successfully hosted by ABES Engineering College, Ghaziabad. In this virtual hackathon there were

three rounds. First was the idea selection round where the teams from all over India were asked to present their ideas/solution for a problem based on the given theme of 'SELF RELIANT INDIA' with various domains such as Healthcare, Education, Finance, Agricultural and Social Innovation.

The entries for this round were initially accepted from 1st October 2020 to 25th October 2020 and due to popular demand, the deadline was extended to 30th October 2020. For the first round more than 75 entries were received. From which only 20 teams were shortlisted for the 2nd round which was the interview round. In this round the selected teams had to explain their idea/project to a panel of judges from which 10 teams were supposed to be selected pan India. This round was organised on 22nd November,2020 and for this round we had 16 judges from the various industries, different ACM chapters and from ACM Student chapter and ACM-W student chapter of ABES Engineering College, Ghaziabad. On 19th December 2020, the final round started with the inaugural ceremony which was addressed by Mr. Chandrashekar Sahasrabudhe (COO, ACM India) followed by Dr. Heena Timani (Chairperson, ACM-W India), Dr. Shailesh Tiwari (Director, ABESec) and Dr. Pankaj K. Sharma (Head, CS Department, Faculty sponsor ACM ABES Chapter). This inauguration ceremony was concluded by Ms. Madhuri Gupta, Faculty Coordinator, ACM-W ABESec Chapter followed by a vote of thanks by Ms. Sanika Singh.

They were asked to develop a solution on a problem statement that was allotted to them on 19<sup>th</sup> December 2020. On the same day, there were two mentoring sessions for each team, to help them with the problem statement followed by one evaluation session on the same day. For refreshment purposes a cultural program was even organised on 19<sup>th</sup> December 2020. After continues coding for 24 hours the teams were ready with their project. By the end of the hackathon i.e. on 20<sup>th</sup> DECEMBER 2020 teams were supposed to submit a 3min video illustration of their project and after that a final evaluation was conducted with a panel of reputed judges. The valedictory ceremony was initiated by Ms Ritika Malik, Faculty Sponsor of ACM-W ABESec student Chapter with a small briefing of the entire event. Hackathon winners were announced by Dr. Heena Timani, Chairperson ACM-W India.

1st Prize: ₹ 24,000	2nd Prize: ₹ 15,000	3rd Prize: ₹ 12,000
<b>Team Leader</b>	<b>Team Leader</b>	<b>Team Leader</b>
Ms.Sakshi Singh <b>College:</b> K.I.E.T Ghaziabad <b>Project Title:</b> Spam SMS Filtering	Ms. Ruchika Sharan <b>College:</b> IIT Mandi <b>Project Title:</b> A system for detection of corona virus in human body using artificial intelligence	Ms. Sanjana Jain <b>College:</b> ABES Engineering College, Ghaziabad <b>Project Title:</b> System for prescribing drug in hospitals and it's substitute availability in the medical shops of the area/city

## ACM-W India Workshop during ACM India Annual Event 2021

The ACM-W India Workshop was organized virtually on 10<sup>th</sup> February, 2021, with the theme “Women in Computer Science and Research”, during the ACM Annual Event 2021. It was hosted by the PSG College of Technology Coimbatore.

The workshop started with a welcome address by Dr. Heena Timani (Chair, ACM-W India), in which she highlighted the ACM-W programs and activities of council, such as the celebration of women in computing, India chapters, Hackathon, the Summer and Winter Schools for women.

The event highlight was a keynote address by Dr. Ranjita Bhagwan, Senior Principal Researcher at Microsoft Research India and Recipients of ACM India Outstanding Contributions in Computing by a Woman (OCCW Award). Her title of talk was “Using Data to Build Better Systems and Services.”

Second keynote by Dr. Shubha Tole, an Indian neuroscientist, Professor and Principal Investigator at the Tata Institute of Fundamental Research in Mumbai, India. Her title of talk was “How the brain perceives the world and discussion on women in STEM.”



A panel discussion focusing on the challenges and opportunities women face in Virtual Workplaces. During the discussion moderator of panel discussion Dr. Kalika Bali Principal Researcher, Microsoft Research Lab, India said that the new norms and expectations that the COVID-19 pandemic have forced upon the workplace will change management strategies permanently.

### ACM W Regional Celebrations

- ❖ A virtual ACM W regional celebration India was organised by ACM-W Chennai Professional Chapter along with the ACM-W Student Chapters of SSN College of Engineering, SRM Institute of Science, VIT Chennai and Easwari Engineering College on 10th October, 2020 with the theme “Artificial Intelligence for Social Good”.
- ❖ A virtual ACM W regional celebration India was organised by ACM W Pune Professional chapter in association with Pimpri Chinchwad College of Engineering on 3rd March, 2021.

## VARIOUS COMMITTEES

### Research Facilitation

- *Supratik Chakraborty*

ACM India’s research facilitation activities are coordinated by a committee comprised of the following ACM India Council members:

Supratik Chakraborty (IIT Bombay), Meenakshi D’Souza (IIIT Bangalore), Hemangee Kapoor (IIT Guwahati), Ponnurangan Kumaraguru (IIIT Delhi), Venkatesh Raman (IMSc, Chennai) and Vasudeva Varma (IIIT Hyderabad).

The committee currently formulates and oversees the following activities in India:

- ❖ Facilitating Internships and associateships for students/faculty across institutions in India
- ❖ Coordinating ACM India Ph.D. Clinic
- ❖ Conducting CS/IT Ph.D. production surveys in India
- ❖ Facilitating ACM higher grade (Distinguished Members and Fellows) nominations from India

During the period 1 April 2020 to 31 March 2021, the following activities were undertaken by the Research Facilitation Committee.

- ❖ **Internships and associateships:** A new internship program for CS/IT Ph.D. students in India, called

“Anveshan Setu” (meaning a bridge for research – one that transcends institutional boundaries), was operationalized from November 2020. The program selects CS/IT Ph.D. students from any institution/university in India through a competitive process and matches them with mentors, who are leading researchers in CS/IT across India, for an internship of 4 weeks at the mentor’s host institution. ACM India provides financial support to the tune of Rs. 20000, in addition to institutional overheads for the hosting institution, for this 4-week visit. The pairing of mentees with mentors happens in a mutually agreeable manner – mentees opt from a list of mentors, and mentors examine the credentials of mentees and also talk to them, if needed, before signing up for mentoring specific students.

The call for applications went out in January 2021, and 56 applications were received (of which 52 met the eligibility criteria). A total of 25 mentors from premier institutes/universities/organizations across India signed up to be paired with willing mentees. Of the 52 eligible applicants, 37 were finally selected for the Anveshan Setu program for 2021, after a thorough scrutinization and mentor-mentee pair-

ing process spanning 2 months. The announcement of the list of selected applicants was done in early March 2021, and the actual internships/visits are expected to start from May/June 2021.

More details about the Anveshan Setu program can be found at <https://india.acm.org/research/anveshan-setu>

In addition to the Anveshan Setu program (meant exclusively for Ph.D. students), the Research Facilitation Committee has also started working, in collaboration with a team from IIIT Delhi led by Prof. Pankaj Jalote, to build a portal to facilitate internships and associateships for M.S./M.Tech. students in CS/IT and also for faculty members from several colleges/institutes in India. A prototype portal has already been developed by the IIIT Delhi team for this purpose, and it is intended to be fine-tuned and made operational within the next few months.

- ❖ **Ph.D. Clinic:** ACM India Ph.D. Clinic was launched in September 2020 to enable CS/IT Ph.D. students from all over India obtain technical and career-related inputs and advice from expert mentors located in premier academic institutions and industry. Currently, about 35 faculty from top-tier institutions and industry (from India and even abroad), including IISc, IITs, IIITs, CMI, IMSc, Microsoft Research, JNU have joined as mentors. Mentors typically spend a few hours each month talking to students over video conference and giving concrete and constructive suggestions on their work. Each clinic session is a one-on-one engagement, and a student gets to choose a mentor who works in his/her area from the available list of mentors. Over 100 such sessions have already been conducted, and the demand and popularity of this event appears to be constantly on the rise.

In addition to Ph.D. Clinics, three Ask-Me-Anything sessions on doing a Ph.D. and on related topics have been organized with leading researchers from the academia and industry. In addition, a discussion session on whether or not to do a Ph.D. has been organized to help those deciding on embarking on a Ph.D. take the right decisions for them. Unlike Ph.D. Clinic, which happens through one-on-one sessions, these events have a different format in which registered participants can ask free-format questions to the experts during a designated hour, and everybody gets to participate in the discussions.

More information about the ACM India Ph.D. Clinic program can be found at <https://india.acm.org/research/phd-clinic>

- ❖ **CS/IT Ph.D. Production Survey:** This is a survey that is typically undertaken once in two years to understand the health of the CS/IT Ph.D. granting

programs in India. All institutes/universities granting Ph.D. in CS/IT in India, and whose contacts are in ACM India's database are contacted with a standard set of questions, and repeated follow-up is done to obtain information about number of Ph.D. students enrolled, number of Ph.D. degrees awarded, breakup of areas in which these Ph.D.s are granted etc. The last such survey was conducted in 2020 by Prof. Meenakshi D'Souza and Prof. Vasudeva Varma, and it has been decided that in future, this survey will be conducted on an as-needed basis.

- ❖ **ACM higher grade nominations:** There is general consensus in the ACM India Council that although high quality research is done by CS/IT researchers in India, there are very few nominations for ACM higher grades (i.e. Distinguished Members and Fellows) from India. In order to remedy this situation, a committee consisting of ACM Fellows from India and abroad has been set up under the chairpersonship of Dr. Ganesan Ramalingam from Microsoft, Redmond. The committee has started its work to identify potential nominees from India for both ACM Distinguished Members and ACM Fellows, and also to identify potential nominators and endorsers for such nominees.

## Education

- Viraj Kumar

The Education Committee **completed** two key tasks, initiated under the previous Chair, Prof Abhiram Ranade.

1. We submitted a response on behalf of ACM India to the ACM/IEEE Computer Society's *Computing Curricula 2020* (better known as CC2020) [report](#). CC2020 proposes a competency based framework for defining curricula and for discussing education more generally. This framework introduces a new element – *dispositions* – that “encompass socio-emotional skills, behaviors, and attitudes that characterize the inclination to carry out tasks and the sensitivity to know when and how to engage in those tasks” (page 45 of the final CC2020 report). Our response, co-authored by all Education Committee members, recognizes the importance of highlighting dispositions (something that is often under-emphasized or altogether neglected), but notes that CC2020 does not provide a data-based justification for this element, nor does it provide sufficient guidance on whether/how dispositions can be taught and assessed.
2. We submitted a *Report on the design of the Introductory Programming course* to the All India Council for Technical Education (Government of India), authored by a task group comprising Abhiram Ranade (IIT Bombay), Venkatesh

Choppella (IIIT Hyderabad), and Shrawan Kumar (TCS Research), with inputs from the Education Committee. This report is based on the CC2020 competency-based framework, and makes specific recommendations for the Knowledge, Skills, and Dispositions components of the Introductory Programming course. Further, the report provides guidance on designing high-quality assessments for this course.

In addition, the Education Committee has initiated several activities aimed at improving the quality of CS education, particularly in institutions outside the top-tier. We highlight two of these activities:

1. Prof Pankaj Jalote (IIIT Delhi and Education Committee member) has initiated a *Certificate Program in Computer Science Education*. The goal of this initiative is to provide online, synchronous (“live”) training for faculty in 12-15 week modules, where each module targets a specific CS course. The Education Committee is working closely in planning this initiative, and will contribute to its implementation.
2. Prof Venkatesh Raman (IMSc Chennai and Executive Committee liaison for the Education Committee) has initiated an *Expert Teacher Program*. The goal of this initiative is to identify institutions who are keen to improve the quality of specific CS courses, and to pair these institutions with designated experts. These experts work closely with the institution’s own faculty in designing and delivering (online) lectures that provide better motivation and depth, as well as creating new formative and summative assessments to improve the quality of student learning.

## Learning Initiatives Committee

- Rajeev Shorey

The ACM India Learning Initiatives Committee is Chaired by Rajeev Shorey, UQIDAR, IIT Delhi. The committee has seven members - Hemant Pande, Executive Committee Representative, Sorav Bansal, IIT Delhi, Gargi Dasgupta, IBM Research, Lipika Dey, TCS Research & Innovation, Viraj Kumar, Dayananda Sagar University, Bangalore, Sudip Misra, IIT Kharagpur and Yogesh Simmhan, IISc Bangalore.

The basic objective of the ACM India Learning Initiatives Committee is to ensure that computing professionals from diverse backgrounds are well served with regard to upgrading their knowledge and skill sets. The committee focuses on professional development through organized learning resources for computing practitioners, such as workshops, seminars/webinars, blogs and boot camps. We

believe this will hugely benefit students, teachers and industry professionals alike.

The Learning Initiatives Committee has several sub-committees, each responsible for an important initiative. The sub-committees are - Industry & Education Webinars, Live Interactions, Industry Bootcamp, ACM Minigraphs and Blogs.

Due to the Covid19 pandemic, all the activities of the ACM India Learning Initiative Committee in 2020 – 2021 were virtual. The year was packed with exciting events that kept all the members fairly busy.

The past year included two very exciting and well attended Live Interactions. The Live Interaction titled “Recent Advances in AI / ML in Networked Systems: Opportunities and Challenges” was held on 22 October 2020. The eminent participants included Ranjita Bhagwan, Microsoft Research, Bangalore, Lipika Dey, TCS Research & Innovation, New Delhi, Ashutosh Dutta, John Hopkins University, USA, Vijay Gabale, Inflect, Bangalore, Archan Misra, Singapore Management University (SMU), Singapore, Shourya Roy, Flipkart, Bangalore and Huzur Saran, CSE Department, IIT Delhi. The Live Interaction titled “The Science of Cyberphysical System Safety and Security” was held on 16 December 2020 and included Gérard Berry, Member of the French Académie des sciences, France, Sandeep Kumar Shukla, CSE Department, IIT Kanpur, Sanjiva Prasad, CSE Department, IIT Delhi and Sailaja Vadlamudi, SAP Labs, India as panelists. Both the Live Interactions were moderated by Rajeev Shorey and Hemant Pande.

Eminent researchers and practitioners were invited to deliver Industry and Education Webinars that were held throughout the year. The talk by Ranjita Bhagwan (Microsoft Research) titled “Using Data to Build Better Systems and Services” was held on 12 December 2020 and the talk by Kumar Sivarajan (Tejas Networks) titled “Advances in Communications Technology to Support the Convergence of Communications” was held on 27 February 2021. Both the talks were very well attended.

Navin Kabra (Co-founder and CTO, ReliScore.com) gave an excellent talk on 12 January 2021 titled “How to Better Prepare CS/IT Graduates for Industry”. This was followed by a talk by R. Ramanujam (IMSc, Chennai) on 11 March titled “Why Should We Learn Theory of Computation?”. Neeran M. Karnik (Researcher and software architect) delivered a talk on 27 March titled “Cloud-Native Computing”.

The Learning Initiatives Committee conducted a very exciting Industry Bootcamp on Blockchain from 18th February 2021 to 20th February 2021. The Bootcamp was chaired by Gargi Dasgupta. The following faculty members ran the Bootcamp successfully - Chaya Ganesh, IISc, Harihara Natarajan, Wipro, Hitarshi Buch,

Wipro, Krishnasuri Narayanam, IBM Research India and Ravi Kishore, C-DAC. The first ACM India Bootcamp was attended by 18 industry professionals.

Thanks to the vision and efforts of Mathai Joseph, ACM Minigraphs has been a big feather in the cap of the Learning Initiatives Committee. The Minigraphs Editorial Board was formed in early 2021. The board is chaired by Mathai Joseph and Sanjiva Prasad is one of the members of the board. Four authors have confirmed to contribute to the ACM Minigraphs. We are extremely grateful to Sachin Lodha, TCS Research & Innovation (topic: Privacy), Amith Singhee, IBM Research (topic: Hybrid Cloud), Rekha Singhal, TCS Research & Innovation (topic: HPC for AI) and Sorav Bansal, IIT Delhi (topic: Verification of Software Systems) for coming forward and agreeing to contribute to this important and timely initiative of the Learning Initiatives Committee.

## Publicity and Membership

- Ponnurangam Kumaraguru

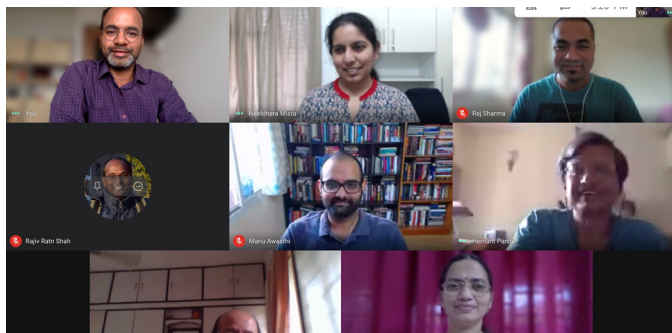
Objectives / Scope of the committee:

- ❖ To evangelize COMPUTING in India
- ❖ To manage the website, social media handles
- ❖ To help other committees for publicity
- ❖ Increase visibility of events / activities of ACM India
- ❖ Identify, & interact with champions in institutions, industry, states / cities, to take their help in evangelizing computing

Committee Members:

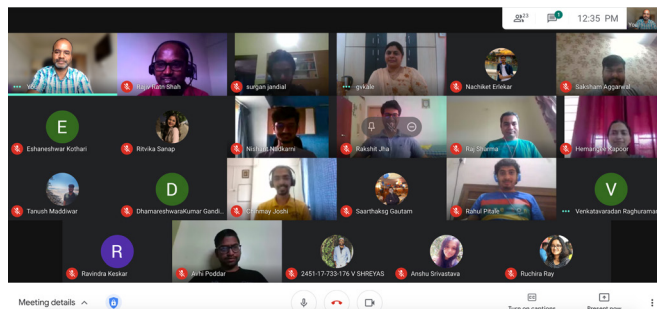
- ❖ Manu Awasthi, Ashoka University
- ❖ Hemangee Kapoor, IIT Guwahati
- ❖ Hemant Pande, ACM India
- ❖ Chandrashekhar Sahasrabudhe, Persistent
- ❖ Rajiv Ratn Shah, IIIT Delhi
- ❖ Raj Sharma, Goldman Sachs
- ❖ Ponnurangam Kumaraguru, IIIT Delhi, Chair

Once we set up the Committee, we started interacting regularly, below is a pic from one of such calls. We used this time to discuss ideas, plan for activities, etc.



One of the 1st activities that we did was to interact with student chapters across the country (see image

below). We received very positive feedback about such a session and chapters also posted pictures of the session on social media! We documented the minutes and discussed it in the next council meeting and shared the relevant ones with all Council members.



We developed videos like the one shown below <https://youtu.be/soYZjg-oYJg> for showcasing the ACM India activities with #KnowYourCouncil . We made a few videos like these and posted it on ACM YouTube's channel. We also created campaign around #KnowYourChapter where Chapters shared information about them and ACM India handle re-shared the same, many Chapters participated in this activity.



One of the primary goals for the Committee was to get more active on Social Media; below tables showcases the continuous growth that we are able to generate on ACM India Social Media handles. We created a new account on Instagram and have moved all legacy videos from ACM India onto our YouTube channel.

Social Media	Aug 12, 2020	Oct 17, 2020	Feb 5, 2021	June 7, 2021
Twitter Followers	564	870	1308	1434
Facebook Followers	X	337	529	573
Linkedin Followers	X	414	1162	1465
Instagram Followers	X	168	505	593
YouTube Subscribers	X	X	563	625

To help manage all the events of ACM India, we have set-up <https://event.india.acm.org/calendar.html> and we have given access to this to all Council members so they can add any event in their Committee to the calendar and anybody

who is subscribed to it can receive it automatically.

To help our committee develop artefacts / flyers, we recruited a part-time designer who helped with designing flyers for events like Annual Event, ARCS 2021. Designer also helps other events and Committees on demand basis.

Below is a table showing the membership details.

Membership numbers	Mar 31,21
Professional	5370
Students	5213
Total	10583
No. of Professional Chapters	18
No. of Student Chapters	199
No. of SIG Chapters	14
No. of ACM-W chapters	45

## External Engagements

- Manish Gupta

The overall scope of the External Engagements Committee (EEC) is: i) to have ACM India play a role in formulating and shaping national policies and ii) interfacing with other organizations and society at large.

The committee is chaired by Manish Gupta and the members are Anand Deshpande, Neelam Dhawan, Geetha Kannan, Viraj Kumar, P.J. Narayanan, Hemant Pande and S. Sadagopan.

(a) One of the main initiatives of EEC, the Institutional Partnership Program of ACM India is modelled as a one-stop-shop for Indian computing industry for participation, visibility and leadership opportunities in all individual ACM India initiatives. The program involves an annual subscription paid by the partner organization at Platinum, Gold or Silver tier. The subscription funds go a long way in providing ACM India the ability and flexibility to support multiple initiatives, and in turn enable ACM India to offer certain benefits to the partner.

Google, Icertis, Persistent and TCS have been Platinum tier partners and Cisco a Silver tier partner of ACM India since 2020. We are pleased to announce that IBM India and Huawei are coming on board at Gold tier and Facebook is coming on board at Silver tier

(b) As part of the mission to influence technology policies, the EEC chose Cybersecurity as an important area where ACM India would create

a Cybersecurity aware community, provide input to curriculum, submit position papers / recommendations, comment on industry standards for security / privacy and influence government policy. Towards this objective a Cybersecurity core team has been set up with the following composition:

- ❖ Chair: Rajat Moona (Director IIT Bhilai)
- ❖ Academia Members: Souradyuti Paul (IIT Bhilai), Manoj Prabhakaran (IITB), Shweta Agarwal (IITM), Chaya Ganesh (IISc)
- ❖ Industry Members: Pandurang Kamat (Persistent), Sachin Lodha (TCS), Vivek Raghavan (UIDAI), Nitin Mishra (GSTN)

To start with, the core team plans to organize a by-invitation workshop which would involve a group of experts in the area from academia, industry and government to propose certain specific initiatives, solicit reviews / comments and further participation to take the initiatives to closure.

## Assessment

- Gargi Dasgupta

The role of the assessment committee is to help with evaluating various requests that come to ACM India on grants for conferences, grants for student travel and eminent speaker nominations.

In 2021 the committee approved nine conferences and rejected four proposals. The approved conferences include FIRE'20, VLSID'21, ISEC'21, AIR'21, COMSNETS'22, IKDD ACM Chapter conference'22, CODS-COMAD'22, AIMLSYSTEMS'21, IndiaHCI'21. The rejections were mostly on account of incomplete information and scope of the proposal.

On student travel grants the committee received fifteen proposals out of which one was approved, eleven were rejected, and three have decision pending. The first six months of the year saw a very low number of proposals. This can be attributed to the reduced need of travel. However the committee's endeavours are targeted at helping grant these awards to more students outside of the top institutions.

Under the Speaker Nominations, we have 4 new ESP candidates and have retired 1 candidate. The committee has also started the "Featured Speaker of the Month" series. In light of all disrupted schedules, and very low engagement from universities who invite our speakers, the committee decided to push a profile each month (from among our speakers) to all ACM chapters. This will keep the program alive.

The committee aims to bring 2 big conferences to India in 2022/2023: The initial plan is to target CCGrid 2023 and a conference on AI/ML.



## Internal Engagements

- Vasudeva Varma

Internal Engagements Committee is focused on providing necessary support to various kinds of ACM chapters in India - including student chapters, professional chapters, ACM-W chapters as well as SIG chapters. In the past year, we have reviewed activities of all these types of chapters and made efforts to improve their effectiveness.

Student chapters form a major chunk of ACM India. We conduct an annual summit for the student chapters and along with this flagship event, we also conduct several competitions. Due to the pandemic, we didn't conduct the student chapter summit this year, however, we have successfully organized a coding contest for students from 31<sup>st</sup> October to 21<sup>st</sup> November 2020. We have planned the student chapter summit towards the end of the calendar year 2021 as a hybrid event initially (but it will likely be conducted as a virtual event, given the situation in the country). Necessary planning has begun, and it will be hosted by Chitkara University. The exact dates are to be finalized.

We have created a portal for all student chapters: <https://acmindia-studentchapters.in/>

This portal contains all basic information about every chapter and pointers to individual chapter links. All

common information can be accessed from this portal. We will be providing them with a webspace to report the conduct of already conducted and forthcoming activities.

The student chapter awards are usually given during the ACM India annual event and the selection process for these awards is announced and made available on the above portal. We are introducing a new set of awards to ensure more engagement with student chapters. The award categories for the year 2021 are:

- ★ Outstanding Chapter website award
- ★ Outstanding Chapter Activities Award
- ★ Outstanding Community service award
- ★ Emerging chapter award
- ★ Outstanding Chapter award (India)

The committee spent a lot of its energy and time to revive the professional chapters of ACM in India. We have met and brainstormed with several professional chapters in various cities. We have gathered insights on what is working well and what are the areas for improvement. We have studied successful strategies of other professional bodies and other ACM professional chapters across the globe. We are documenting all our learnings and coming up with a set of recommendations to revive several dormant professional chapters. This document is submitted to the ACM India council for consideration.

## SIG ACTIVITIES

### SIG IKDD: CODS-COMAD 2021

- Jayant Haritsa and Shourya Roy (General Co-chairs)

Website: <https://cods-comad.in/2021/>

The fourth ACM India Joint International Conference on Data Science and Management of Data (CODS-COMAD) 2021 (8th CODS and 25th COMAD), was held from January 2 to 4, 2021. Owing to the Covid-19 pandemic, the conference was held virtually through a home-grown platform on top of miniconf<sup>1</sup>. Over six hundred registered participants attended the conference which is the highest among all past editions.

The conference had an impressive set of Keynote speeches by an international slate of eminent academicians — Professors Divyakant Agrawal (University of California, Santa Barbara), Geoffrey E. Hinton (University of Toronto, Google), Michael I. Jordan (University of California, Berkeley), Renée Miller (Northeastern University), and Ashwin Srinivasan (BITS Pilani, Goa). In addition, there were three invited talks by industry researchers viz Amit Dhurandhar (IBM), Goda Doreswamy (Swiggy) and Avijit Mishra (Apple) and a Young Researchers' Symposium Keynote talk

by Ponnurangam Kumaraguru (PK, IIT Delhi). The program also had two engaging panel discussions with well-known researchers and leaders from the academic and industrial communities on “Challenges in Deploying Data Science Solutions” and “Challenges and Opportunities presented by COVID-19 for the Data Science community”.

The program committee chairs Sharad Mehrota and Manish Gupta with the help of other track chairs put together an excellent program. The Research Track received 140 submissions (100 long papers and 40 short papers) of which 21 were accepted for presentation as long papers and 17 as short papers. The Industry Track had 35 submissions (31 regular papers and 4 technology showcase) out of which 13 (11 regular and 2 technology showcase) were accepted for presentation, whereas the Demonstrations Track had 25 submissions out of which 9 were accepted. CODS COMAD has been running a Young Researchers' Symposium (YRS) where current (mostly doctoral) students present their work and receive feedback from the community. This year, YRS received 87 submissions out of which 31 were accepted for presentation. The conference

continued the tradition of a session on presentation of papers which were accepted in premier conferences in recent times where six talks spanning across AAI, VLDB, NIPS, CVPR, ACL were conducted. All these numbers testify to the growing popularity of the conference as the pre-eminent forum in the country for top researchers from both academia and industry to showcase their work and exchange ideas.

This year, we received generous sponsorships from a number of organizations including Platinum Sponsors (Games247, Huawei), Diamond Sponsors (Adobe, Amazon, American Express, Google and Tata Consultancy Services) and Silver Sponsor (Bosch). The conference is indebted to all of them, many of whom have been sustaining their support continuously over several editions. They, along with ACM India, made this event possible. Given the impressive turnout this year, we are certain that CODS-COMAD will soon emerge as one of the top destinations in the world for database and data science researchers and practitioners, and serve as a platform for creating a synergy between academia and industry leading to game-changing, long-term and socially impactful innovations.

## SIG ISOFT

### Report on ISEC-2021

Innovations in Software Engineering Conference, ISEC (Formerly known as India Software Engineering Conference) is the annual conference of ISOFT, the India chapter of ACM SIGSOFT ([isoft.acm.org](http://isoft.acm.org)) under the umbrella of ACM India. The 14th edition of the conference was held in VIRTUAL MODE at Kalinga Institute of Industrial Technology, Deemed to be University, Bhubaneswar, India. ISEC brought together researchers and practitioners from across the world to share the results of their work. The goal of the conference was 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-2021 had two keynote speeches

**Keynote 1:** What's Wrong with "Users"? By Bran Selic, Malina Software Corp., Canada.

**Keynote 2:** AI and its applications in the Cloud strategy, by Gargi B. Dasgupta, Director, IBM Research, India & CTO, IBM India/South Asia.

### ISEC-2021 had presented three awards

**Award 1:** ICSE 2020 Distinguished Paper

"A Tale from the Trenches: Cognitive Biases and Software Development" – Souti Chattopadhyay, Nicholas Nelson, Audrey Au, Natalia Morales, Christopher Sanchez, Rahul Pandita, and Anita Sarma

**Award 2:** FSE 2019 Distinguished Paper

A Statistics-based Performance Testing Methodology for Cloud Applications, Sen He, Glenna Manns, John Saunders, Wei Wang, Lori Pollock, and Mary Lou Soffa

**Award 3:** ISEC Test of Time award talk

### ISEC 2012 Full Paper

Automatic Categorization of Bug Reports Using Latent Dirichlet Allocation, by Somasundaram, Kalyanasundaram and Murphy, Gail

### ISEC-2021 had following events (numbers):

- A. Research Track (21)
- B. Workshops (4)
- C. Tutorials (1)
- D. Tech Briefings (7)
- E. Ph. D. Symposium (2)
- F. Start Up (2)
- G. Student Software Project Contest (5)

### Four workshops as follows:

**Workshop 1:** Program Synthesis Driven Software Engineering

Software Engineering For Artificial Intelligence (Se4ai 2021)

**Workshop 2:** Software Engineering For An Uncertain World

**Workshop 3:** 4th Workshop On Emerging Software Engineering Education (Wesee 2021)

**Workshop 4:** Program Synthesis Driven Software Engineering

### One Tutorial

Sangharatna Godbole National Institute Of Technology | Warangal (Nitw.Ac.In) Tracer-x: Dynamic Symbolic Execution With Interpolation

### Seven Techbriefings as follows:

1. Lov Kumar, Bits Pilani, Hyderabad, Title: An Empirical Framework To Investigate The Impact Of Bug Fixing On Internal Quality Attributes
2. Janardan Misra & Nisha Ramachandra, Accenture Labs, Title: Reliability Analysis Of Machine Learning Based Data-driven Software
3. Atri Mandal & Shivali Agarwal, Ibm Research, Title: Ai Application Lifecycle Management: A Software Engineering Perspective
4. Sonu Mehta, Microsoft Research, Title: Using Data To Build Better Services
5. Monika Gupta & Hagen Volzer, Ibm Research, Title:

Analyzing Software Repositories Using Process Mining To Identify Automation And Improvement Opportunities

6. Utkarsh Desai & Srikanth G Tamilselvam, Ibm Research, Title: Refactor Monolith To Microservices
7. Santanu K. Rath, Nit Rourkela, Title: Why So Many Web Based Projects Fail In The Present Day Scenario?

#### Five Student Projects as follows:

1. Communal Violence Prediction Using Twitter Data Analysis By Shivani Kumari, Souvik Banerjee From Kiit Du.
2. Lab Monitoring System Nitin Sultania, By Ashmita De From Kiit Du
3. Optimizing The Product Rating System Using The Sentimental Analysis Of The Reviews By Anoushka Mishra, Neemisa Das, Shushant Ghosh, Aman Dubey From Kiit Du.
4. Formal Runtime Monitoring Approaches For Autonomous Vehicles By Abhinandan Panda, Saumya Shankar From Iit, Bbsr
5. Feed Poor And Needy By Sakshi Agrawal, Siddhartha Maitra, Harsh Anant From Kiit Du.

#### Two Start-ups:

**Start-Up 1:** 10xofy By Ashish Belagali, IIT Bombay

**Start-Up 2:** Ewarn System Pvt Ltd By Santos Kumar Das, NIT Rourkela

#### Report on SERI

The second SERI update meeting is an informal gathering of Software Engineering practitioners in India with a motive to discuss the current state of research in Software Engineering in India among Academia and Industry. The idea is to look at the research work in the early or later stages. The intent is to encourage folks to participate and discuss approaches rather than look at publishable quality results. IIIT Hyderabad hosted this edition as an ONLINE virtual event on 9th, 10th and 11th of July, 2020 via YouTube Premieres on Official YouTube Channel SERI. This is an event for collaboration among research groups towards generating productive research for the upcoming year. This event is sponsored by the India Chapter of SIGSOFT Special Interest Group of ACM, Software Engineering Research Center (SERC) - IIIT Hyderabad.

There were 27 speaker submissions out of which the steering committee accepted 24 speaker submissions. There were 259 participant submissions, and the steering committee considered all participation

requests in the view of an Online event. This edition of the update meeting was conducted as an Online event using Microsoft Teams. The event was scheduled into six different session tracks grouped by relevant research areas for three days. Each day had two sessions with four speakers per session hosted by a session chair. Three full-day meeting invites were sent to all the participants and speakers to join the day-long Online conference call. The shortlisted speakers were requested to provide a 20-minute video presentation before the event. The videos of all 24 submissions are hosted as YouTube Premieres as per the pre-defined schedule.

## SIG ISIGCSE

### Report on iSIGCSE Chapter Activities

ACM India Annual symposium COMPUTE 2020 was organized by VNIT, Nagpur during December 09 -12, 2020 in virtual mode.

The following new office bearers were nominated for iSIGCSE Chapter and took charge from 1<sup>st</sup> March 2021.

Dr. Chitra Babu	- Chair
Mr. N.S. Kumar	- Vice-Chair
Dr. Sridhar Chimalakonda	- Secretary/Treasurer
Dr. Neeraj Goel	- Web Chair

After taking over, the team reached out to the attendees of the past 3 editions of COMPUTE and checked with them whether they would like to be iSIGCSE members. Based on their interest and consent, the member base was expanded from 32 to 135.

The domain for hosting the website for iSIGCSE was requested from the ACM headquarters and after the domain is allotted, the website was designed and commissioned with all basic necessary information. It was also realized that the iSIGCSE website is linked now from the main SIGCSE website. It has been requested to the ACM India council to provide a link to the iSIGCSE website at an appropriate place in the ACM India website.

The team has reached out to all the members and have collected responses regarding how they would like to contribute to iSIGCSE as well as what kind of activities they expect to see from iSIGCSE. As of now, these responses have been collated and the activities for the coming year are being planned accordingly.

A webinar by Prof. Armondo Fox, Department of Electrical Engineering and Computer Science, University of Berkeley was organized on 12<sup>th</sup> April 2021 on the topic "Undergraduate Software Engineering Course: A Contemporary Perspective". 60 people across India attended this webinar.

## CSPATHSHALA ANNUAL REPORT 2020-21

- Vipul Shah and Sonia Garcha

### Executive Summary

The Association for Computing Machinery (ACM) India started an education initiative, CSPATHSHALA ([www.cspathshala.org](http://www.cspathshala.org)) in 2016, to teach computing as a science in all schools. The key objectives are to popularise Computational Thinking (CT) and influence education policy to enable its introduction into the curricula. CSPATHSHALA advocacy efforts paid off and the **National Education Policy 2020** recommends that computational thinking be taught from foundational stages. CT curriculum has been piloted by 4,00,000+ students in 1200 schools across 11 states in 4 languages and Tamil Nadu SCERT has adopted the unplugged computational thinking curriculum as part of its mathematics curriculum for 30,000 schools from 2018.

COVID-19 pandemic led to the complete closure of schools in March 2020, urban schools continued education virtually, students from rural government schools lacked the necessary infrastructure resulting in very little learning increasing the inequities. In light of the pandemic, CSPATHSHALA pivoted its programs and trained 7,000+ teachers through 18 virtual webinars, awareness workshops and training programs. Bebras India Computational Thinking challenge 2020 saw online participation of 1,03,114 students, 600 schools in 19 states in 7 languages which included rural and government school students from Andhra Pradesh, Gujarat, Jammu and Kashmir, Karnataka, Maharashtra, Odisha, Rajasthan and Tamil Nadu. The 2nd Conference on Computational Thinking in Schools, CTIS2020, was held virtually on 2nd and 3rd October 2020 with participation of 1000+ delegates. CSPATHSHALA Computational Thinking in School Award was awarded jointly to Ms. Palaparathi Pooja, APSWRS (Girls), Andhra Pradesh and Santosh Hande, Zilla Parishad school, Khed in recognition of their teaching excellence in computing.

Partnerships forged with Dassault Systemes Foundation, IISER Pune, TCSIon and Panchatantra Programming. In 2021-2022, CSPATHSHALA will continue to focus its efforts with the government to mainstream CT, empower teachers and increase its reach in rural areas. In this report we highlight the details of the various activities carried out.

We were invited to conduct a workshop for the Bhutan government. The purpose of the workshop was to share ACM India experience bringing computational thinking to schools in India.

### Webinars, Awareness Workshops and Training Programs

So far, 12,000 teachers from 4000 institutes have been trained through 110+ webinars, awareness workshops and training programs and in 2020-21, CSPATHSHALA through 18 online programs trained 7,000+ teachers.

To support professional development for teachers, provide them an exposure and opportunity to learn from experts so as to prepare them to teach computational thinking as per NEP 2020, 5 teacher-oriented webinars were conducted featuring Prof. Tim Bell-NZ, Prof. Jonaki Ghosh-IN, Prof. Dan Garcia-USA, Prof. Jeannette Wing-USA, Prof. Valentina Dagiene-LT. The webinars saw a participation of 3,000+ teachers, educators, professionals and academia.

Online Awareness Workshops and Teachers Training Programs organised for:

- ❖ Teachers training on Computational Thinking were for Computer and Maths teachers from Meghe Group of Schools, Surat, NSPM Nashik, Shri Ram Schools and Podar School, Satara
- ❖ Ten weeks online training program on Scratch programming in partnership with Panchatantra Programming for 180 IT/CT trainers from Andhra Pradesh Social Welfare Schools
- ❖ Computational Thinking Workshop, Shaastra Juniors 2020, IITM
- ❖ Awareness workshops in partnership with CUP webinar series and ShriEducare Limited
- ❖ CTIS2020 virtual conference on 2nd and 3rd October 2020 saw participation of 1000+ delegates
- ❖ APSWREIS Showcase Event and CTIS2020 Knowledge Assimilation sessions for 427 IT/CT trainers

### Programs

Naipunya Vikasam, a government program to build English and IT/CT skills for students from socially weaker sections of the society. 427 social and tribal welfare schools in Andhra Pradesh are implementing CT under this program. Additionally 400 zilla parishad schools in Khed taluka, Maharashtra, Meghe group of Schools as well as many other schools across the country have been implementing CSPATHSHALA curriculum.

### Andhra Pradesh Social Welfare Education Institutions Society (APSWREIS)

The Computational Thinking curriculum was introduced as part of Andhra Pradesh Schools Program for Innovation, Research and Excellence (ASPIRE) since Academic year 2018-19 for Classes 5-12 in 427 Andhra Pradesh Social Welfare and Tribal schools with 2,00,000

students across 13 Districts in Andhra Pradesh. Owing to the pandemic, schools reopened in January 2021 for students in person.



#### Highlights of the implementation:

- ❖ Learning circle sessions for CTiS2020 conference sessions' knowledge assimilation in October 2020 for 427 trainers with expert resources
- ❖ AP Showcase event for 28 IT/CT trainers to share their experiences in overcoming the challenges, motivated and engaged students in learning CT in November 2020
- ❖ Participation of 81,000+ students in 2020 Bebras India challenge
- ❖ A ten weeks online Scratch training program was conducted in partnership with Panchatantra Programming for IT/CT trainers of 189 Social Welfare schools



#### Zilla Parishad Schools, Khed, Maharashtra

Cspathshala has been carrying out a pilot with 50 Zilla Parishad schools in Khed, Maharashtra.

#### Highlights of the implementation:

- ❖ While schools were closed, teachers were printing material and delivering to students at their homes in the villages. Online implementation support was provided to teachers

- ❖ Participation of 400 students from 8 schools in 2020 Bebras India challenge
- ❖ In February 2021 students came back to school, teachers shared that students enjoyed the unplugged activities and participated with enthusiasm.



We now have a strong base of schools with very good representation from both urban and rural parts of the country. We will continue to work closely with these schools to study the impact of the program.

#### Bebras India Computational Thinking Challenge

Bebras India Computational Thinking Challenge is organized by Cspathshala in partnership with TCS since 2018 for age groups 8-18, classes 3-12, free of cost to excite students about computing. Owing to the pandemic, 2020 Bebras India Challenge was conducted online in February 2021 in English, Gujarati, Marathi, Kannada, Odia, Tamil and Telugu and saw participation of 1,03,114 students, 600 schools in 19 states.

#### 2020 Cspathshala Computational Thinking in School Award

Cspathshala Computational Thinking in School Award is instituted to recognize teaching excellence in computing. It was sponsored by Infosys in 2020 and comprises a cash prize of Rs. One Lakh for the teacher and Rs. Two Lakhs for the school. The award was open to all computing teachers in India. Palaparathi Pooja from APSWRS (Girls), Narsipatnam, a Social Welfare

School from Andhra Pradesh and Santosh Hande from Zilla Parishad Jaulke Khurd, Khed were selected as joint winners for their outstanding efforts in inspiring, motivating and engaging students in learning computational thinking and at times overcoming multiple challenges to provide opportunities for unreached students.

### **Computational Thinking in Schools (CTiS) Conference**

CTiS(Computational Thinking in Schools) is organised by CSpashala to provide a platform for school teachers to share innovative and interesting examples

and showcase best practices. The second conference, CTiS2020, was held virtually on 2nd and 3rd October 2020 saw participation of 1000+ delegates which included teachers, Principals, educators and organisations working in the field of education from across 15 countries. CTiS2020 featured Keynote Speaker Prof. Sridhar Iyer, IIT Bombay and international speakers, distinguished speaker Prof. Jeannette M Wing, Columbia University, NY and Jake Baskin, Executive Director, Computer Science Teachers Association, the world's leading association for K-12 computer science teachers, panel discussions and 14 teacher presentations.





**Association for Computing Machinery**

C/O Persistent Systems Ltd

“Pingala - Aryabhata”

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**ANNUAL REPORT**  
of the ACM India Council

For the Period: July 1, 2020 - June 30, 2021

Submitted by Hemant Pande, Executive Director

This is annexure to ACM India Annual Report available at - [ACM India Annual Report FY'21](#) mainly adding a report on various committee compositions, budgets and DIVERSITY, EQUITY & INCLUSION FOCUS.

The ACM India Council is an effort of ACM, aimed at increasing the level and visibility of ACM activities across India. The ACM India Council activities - involving both academia and industry in computing - include promoting research, advancing computing education, organization of high-quality computing conferences, individual professional development and recognition of achievements.

The organization of ACM India Council for the duration of July 1, 2020 to June 30, 2022 is as follows:

ACM India Council Executive Committee:

- Jayant Haritsa: President
- Hemangee Kapoor: Vice President
- Venkatesh Raman: Secretary / Treasurer
- Hemant Pande: Executive Director
- Chandrashekhar Sahasrabudhe: Chief Operating Officer

ACM India Council Members:

- Supratik Chakraborty
- Meenakshi D'Souza
- Gargi Dasgupta
- Manish Gupta
- Pankaj Jalote
- Venkatesh Kamat
- Viraj Kumar
- Ponnurangam Kumaraguru
- Rajeev Shorey
- Vasudeva Varma

Ex-officio Members:

- Abhiram Ranade: Past President
- Heena Timani: ACM-W India Chair

The executive committee of ACM India Council focuses on strategic, directional, legal and financial matters of the Council. As a standardized process, the council meets 3 times a year (October, February and June), and the Executive Committee meets on the last Saturday of each month to track the progress of ACM India initiatives.

As of August 2020, in order to streamline its operations, the Council put a new structure in place. In addition to the Executive Committee, the council comprises 10 committees. Each committee is



typically chaired by a council member and includes other members of the council as well as external volunteer members from academia and industry. The tenure of the committees is expected to be ongoing with any re-structuring to be done as needed. The committees with their respective chairs and members are listed below.

<b>Committee Name</b>	<b>Chair</b>	<b>Members</b>	<b>Budget</b>
<b>Executive Committee</b>	Jayant Haritsa	Hemangee Kapoor, Venkatesh Raman, Hemant Pande, Chandrashekhar Sahasrabudhe	\$10743
<b>Awards Steering Committee</b>	Pankaj Jalote	Jayant Haritsa, Sriram Rajamani, Anand Deshpande, Hemant Pande, Chandrashekhar Sahasrabudhe, Supratik Chakraborty	\$52857
<b>Assessment Committee</b>	Gargi Dasgupta	Hemangee Kapoor, Madhavan Mukund, Manish Gupta, Rajeev Shorey, Yogesh Simmhan	\$36428
<b>ARCS Symposium Steering Committee</b>	Meenakshi D'Souza	Jayant Haritsa, Chandrashekhar Sahasrabudhe, Hemant Pande, Ponnurangam Kumaraguru	\$21429
<b>Education Committee</b>	Viraj Kumar	Venkatesh Raman, R. Venkatesh, Pankaj Jalote, Ramanujam, Chitra Babu, Uday Khedker	\$17143
<b>Summer/Winter School Steering Committee</b>	Venkatesh Kamat	Venkatesh Raman, Neeldhara Misra, Abhijat Vichare, Nutan Limaye, Chandrashekhar Sahasrabudhe, Hemant Pande	\$21429
<b>Learning Initiatives Committee</b>	Rajeev Shorey	Hemant Pande, Gargi Dasgupta, Sorav Bansal, Viraj Kumar, Yogesh Simhan, Sudip Misra, Lipika Dey, Mathai Joseph	-
<b>Research Facilitation Committee</b>	Supratik Chakraborty	Hemangee Kapoor, Vasudeva Varma, Venkatesh Raman, Ponnurangam	\$35174

		Kumaraguru (PK), Meenakshi D'Souza	
<b>Publicity Committee</b>	Ponnurangam Kumaraguru	Hemant Pande, Rajiv Ratn Shah, Raj Sharma, Chandrashekhar Sahasrabudhe, Hemangee Kapoor, Manu Awasthi	-
<b>Internal Engagements Committee</b>	Vasudeva Varma	Chandrashekhar Sahasrabudhe, Rajnish Sharma, Abhijat Vichare, Geetanjali Kale, Neeldhara Misra, Ranga Rajgopal, Chitra Babu	\$7143
<b>External Engagements Committee</b>	Manish Gupta	Hemant Pande, Geetha Kannan, Neelam Dhawan, P. J. Narayanan, S. Sadagopan, Viraj Kumar, Anand Deshpande	-
<b>ACM-W India Committee</b>	Heena Timani	Nutan Limaye, Rituparna Chaki, Tejaswini Apte, Chitra Babu, Kalika Bali, Maushumi Barooah, Lipika Dey, Gunjan Lal, Neeldhara Misra, Arati Dixit	\$10000
<b>CSpathshala</b>	Vipul Shah	Venkatesh Raman, R. Venkatesh, Madhavan Mukund, Ramanujam Sonia Garcha	\$7143

The scope of the committees, a detailed update on the consolidated activities as well the planned initiatives appear in the [ACM India Annual Report FY'21](#) which has been published earlier.

#### DIVERSITY, EQUITY & INCLUSION FOCUS OF ACM INDIA COUNCIL

ACM India Council maintains a conscious focus on diversity, equity and inclusion in its initiatives. The following aspects bring out the focus during FY'21:

- Gender: The entire ACM-W India activity is representative of our focus on gender diversity. We have an active ACM-W India Committee focused on empowering and enabling women professionals to succeed in their computing careers. A significant acknowledgment of the gender diversity initiatives in India came via the "2020 Award for Outstanding Contributions to ACM" for Arati Dixit who was the then chair for ACM-W India Committee. ACM-W India

engages in Gender-sensitive initiatives such as Grad Cohort, Grace Hopper India Conference, ACM-W Celebration of Women in Computing, Hackathons, Blogathons, Summer/Winter Schools, Coding/Poster/Idea presentation competition. We ensure gender diversity in our summer/winter school student selection (in addition to one school reserved for women), in the India Council and subcommittees, and webinar speakers. ACM India Council in FY'21 instituted an award specifically for "Outstanding Contributions to Computing by a Woman" to honor and celebrate the contributions by women professionals from India. We boast as many as 48 ACM-W chapters across India which promote contributions by women in computing.

- Geography: Geographical diversity and inclusion plays a significant role in the events we organize (such as Compute, Annual Event, ARCS, Chapter Summit, ACM-W grad cohort/AICWiC) by choosing locations across India and ensuring equity among tier 1 - tier 2 cities. The geographical diversity also features while selecting the 40-50 students chosen from the applications received for the summer/winter schools. Also helping to enhance the geo-diversity of ACM committees, India-based members are now part of many ACM global committees which select worthy recipients for honors or determine computing strategies. To name a few, we now have representation on ACM Council (Pankaj Jalote), Special Interest Group (SIG) Governing Board (Pankaj Jalote), Computing Prize Committee (Pankaj Jalote), Education Advisory Committee (Abhiram Ranade, R Venkatesh), CS202x Committee (Pankaj Jalote), Global Technology Policy Council (P. J. Narayanan), Practitioner Board (Hemant Pande), and Distinguished Speaker Program Committee (Srinivas Padmanabhuni, Madhavan Mukund).
- Education: In order to promote aspirational academic institutions to raise their research standards, the Travel Grants Program is updating its policies to provide travel support to students from such institutions to attend and present at premier research conferences. "Expert Teacher Program", a new initiative of ACM India Education Committee fosters inclusivity by improving and positively impacting pedagogy in aspirational academic institutions. Through this program, experts from premier academic institutes and industry will partner with aspiring college faculty to teach core or elective courses in the college during their regular course offering. These experts will work with the local faculty to give lectures and to offer suggestions on content, delivery, and resources during the offering of the course through the semester. Like many initiatives, ACM India Council is supporting these programs financially in addition to the human resources.
- Research: In order to enhance the quality of research among PhD students, PhD clinic is a program by which PhD students (typically from Tier II institutions) are paired with experts in the country for one on one consultations. More than hundreds of students have benefited from this program. The research facilitation committee has extended this program to have a few selected students actually spend some period of time at the mentor's institution for more active immersion. Such students are offered a fellowship by ACM-India under the Anveshan Setu program.
- Conferences organized by SIGs also make special efforts for Diversity and Inclusion. The CODS-COMAD 2022 conference organized by IKDD has included a special track for Diversity and Inclusion. Apart from keynotes, special mentoring sessions are included in this track.