Welcome Message from the CCEM 2016 Chairs

It gives us great pleasure to present to you the proceedings of the Fifth Edition of the IEEE International Conference on Cloud Computing in Emerging Markets (CCEM 2016). CCEM 2016 has just concluded, marking five years of a unique and vibrant event that has grown in richness, depth, and relevance as a research-driven innovation conference in the field of cloud computing, particularly for and from emerging markets. This year’s conference, held in Bangalore, had a very interesting mix including:

- 6 tutorials on latest topics
- 11 technical peer-reviewed full papers for oral presentation (accepted out of 85 submissions in a highly selective review process)
- 15 peer-reviewed poster papers
- 9 peer-reviewed technology demonstrations
- 2 thesis proposal summaries in a Doctoral Symposium
- 7 student proof-of-concept project competition presentations on problems relevant to emerging markets
- 25 industry/startup showcase presentations
- 7 invited talks by world leading experts

This confluence of activities spanning academic rigor, industry practice, and emerging market oriented innovation makes CCEM quite distinct from most other conferences in the world. With cloud computing growing significantly in the marketplace (estimated to have crossed $200B in 2016) and fast becoming the primary model for delivering and consuming information technology, this conference truly addresses the next generation of IT systems, services, and solutions that are based on big data coming from mobile phones, social media, enterprise systems, and the Internet of Things. This year’s conference underlined the very active role the emerging markets are playing in cloud computing today and opportunities for leadership in defining a new generation of intelligent computing and automation applied to large-scale emerging market problems.

Like last year we had a preconference workshop in April 2016 targeted at potential participants planning to submit technical papers and Technology Showcase entries to the main conference in October 2016. This preconference workshop had two concurrent tracks: Track A was a set of seven invited presentations by eminent technologists and academics discussing the core topics relevant to the theme of the conference, while Track B focused on private presentations to a select group of experts by the proposal submitters for review and professional feedback on what would pass through the selection criteria of the IEEE CCEM 2016 Conference Technical Program Committee. Teams had to submit proposals for the preconference workshop and participation was by invitation only and limited to those who submitted successful proposals. We saw some outstanding papers coming into the main conference after being vetted in the preconference workshop including the eventual winner of the Best Paper Award at CCEM 2016. CCEM now includes both a postconference workshop that happens within four months after the
main conference and a preconference workshop that happens within the four months preceding the next main conference.

In addition to peer-reviewed technical papers, CCEM has always had strong industry participation. This year’s conference stands out again in this regard with invited keynote talks, tutorials, and industry/startup technology showcases from global experts. The tutorials were outstanding and drew the highest audience this year, thanks to the excellent experts delivering them and the relevance of the content. A Student Proof-of-Concept Project Competition was another new and interesting feature at CCEM this year. We selected seven projects by students who were applying cloud computing to emerging market problems, often motivated by industry. This gave great exposure to students and a platform for them to showcase their innovative work and receive feedback from the expert audience. We saw some very interesting projects and hope to continue to attract creative student projects in the coming years.

We would like to express our deep gratitude to all the members of the organizing committee for their efforts over many months, culminating in this conference. We are indebted to Dr. Rong Chang who showed great enthusiasm for the conference and provided the sponsorship of the IEEE Technical Committee on Services Computing, without which this event could not have taken place. We should particularly call out the leadership and commitment of Vaijayanthi Desai who was the Finance Chair of the conference and its overall program manager. She worked tirelessly to pull the program together, make the conference financially viable, drive most local arrangements, and was really the backbone of the whole conference. We are grateful to Sasikanth Prabha who was the Webmaster working throughout the year on an excellent conference website with the latest information and updates. We thank Sri Chandra of IEEE for actively participating in the organizing committee and securing the financial support and patronage of several industry leaders. Our thanks to Prof. Raghunandan and Dr. Nagaraju Bussa for being the academic liaisons for the conference and ensuring active participation in CCEM by students and faculty.

The quality and standards of CCEM are intimately linked to the rigor of the Technical Program Committee. We are fortunate to have the services and commitment of a committee of world-renowned set of distinguished experts in Cloud Computing. We found that the quality of the papers being submitted to the conference has been improving over the years, thanks to the standards established by the members of the Technical Program Committee. We continue to strive to maintain high standards for the quality of accepted papers by having outstanding reviewers and also augmenting them with open source tools such as CrossCheck to ensure the originality of the submitted papers.

The record turnout for a long day of six tutorials was testimony to the outstanding job done by the Tutorials Chairs Rambabu Parvatina and Prof. Shekar Babu. Sreekrishnan Venkiteswaran, and Prof. TSB Sudarshan conducted the Student Project Competition with aplomb and opened up a new vista in CCEM and for future student participants. Professor R Krishnan did a great job as the Publications Chair and also diligently ensured the quality of all the final published papers by running them through the CrossCheck tool. We thank Prof. Ram Rustagi and Radhesh Kanumury for their efforts in putting together an excellent industry/startup showcase. We are grateful to Harish Mysore, Pramod, Yatheendranath Tarike, and Munir Mohammed from the IEEE Bangalore office for their continued support of CCEM. We are grateful to Randy Bilof of
IEEE Conference Publications for his excellent partnership in producing these proceedings and for his patience throughout the process. We would specially like to thank all the patron organizations—IBM, Philips, Avaya, CDAC, VMWare, and the IEEE Standards Association—for their support, backing, and enthusiasm for CCEM.

We thank all the invited speakers, who are luminaries and eminent professionals, for sparing their valuable time to speak at CCEM about their inspiring work and vision: Mr. Vivek Kulkarni, who inaugurated the conference; Prof. V. Rajaraman who outlined the future model of computing and also chaired the Doctoral Symposium; Dr. Lalitesh Katragadda who held the audience spellbound with his talk on building for India’s next billion; Geetika Goel for her excellent talk on cloud-based learning; Raj Tumuluri for showing the latest on multimodal interfaces; Dr. Arun Hampapur who showed how cloud computing and analytics are changing e-commerce; Rajeswari Ganesan for her talk on cloud-driven deep learning to enable business conversations; and Dr. Dinkar Sitaram and A. Prasanna for their insightful comments on the panel on the future directions of cloud computing and the role of CCEM. We thank Naganand Doraswamy for his words of wisdom on success factors for cloud startups and for inaugurating the Industry/Startup Showcase at CCEM.

We thank all the authors of regular and poster papers for their enthusiastic paper submissions and for their passion for this field. It is their work that forms the heart of CCEM. We also compliment the Ph.D. students who submitted their thesis proposal summaries to the conference and provided a glimpse of the emerging research topics in this field.

A big take-away from the panel discussion at the end of CCEM 2016 was to take the conference to the next level in the coming years by fostering an action-oriented global community that would work on identified challenges in cloud computing, especially as applied to emerging market problems, and that would share at CCEM conferences and workshops the progress in working systems and technical breakthroughs addressing these challenges. We have formed a vibrant community already at CCEM 2016 and we are looking forward to further growing this community that meets in exciting conferences in the coming years! Please join us and track the evolution of CCEM activities at http://conferences.computer.org/ccem!

Dr. Gopal Pingali, IBM
Dr. D. Janakiram, IIT Madras

General Chairs

Dr. T.S. Mohan, Pragyan Data Labs
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xi