Welcome to the 14th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE 2016). During the past two decades, there have been similar trends and common problems in the hardware and software industries. In the hardware industry, the growing complexity of components, the challenge of design verification, and the need to meet the competing objectives of performance, power, and time-to-market make an increase in the abstraction level of the hardware design process essential. The response has been greater use of high-level modeling, using, for example, general-purpose programming languages such as SystemC. Similarly, increasing software complexity coupled with the need for increased performance and lower cost have led important industry sectors, such as avionics companies, to adopt model-based approaches to software development and to increase the use of modeling languages such as Simulink. In both software and hardware, the availability of standard components has produced an urgent need for new methods to adapt and integrate these components and to build trustworthy, cost-effective systems. Formal methods research has produced abstract models, languages, and analysis techniques that provide a sound basis for the high-level modeling, design, and development of both hardware and software, and for adapting and integrating existing components to meet new requirements. As in previous MEMOCODE conferences, the objective of MEMOCODE 2016 is to emphasize the importance of formal models and methods in correct system design and to bring together researchers and industry practitioners interested in all aspects of computer system development to exchange ideas, research results and lessons learned.

Since its founding in 2003, the MEMOCODE series of conferences has grown and evolved. Originally, the title of the conference was Formal Methods and Models for Co-Design, reflecting the initial focus of the conference on hardware software co-design. Since 2003, the boundaries between computer system components, such as hardware, software, middleware, and applications, have blurred. This evolution in system design and development practices led in 2014 to a change in the title and scope of MEMOCODE from its original focus on co-design to a new focus on formal methods and models for developing computer systems and their components as a whole. This year, MEMOCODE has expanded its horizons once again. The site of MEMOCODE 2016 is Kanpur, India – the first time the conference has been held outside of Europe and the US.

This year the MEMOCODE program consists of three outstanding keynotes, 16 strong technical papers, and a short paper/poster session with four papers reporting preliminary results. The keynotes are by André Platzer (Carnegie Mellon University), Robert de Simone (INRIA), and Sriram Rajamani (Microsoft Research). The full technical papers and the short papers were selected from 80 submissions during a review process that included four detailed reviews of most submissions and a very active two-week discussion phase. As in previous meetings, MEMOCODE 2016 maintains an international flavor with submissions from India, Germany, US, Austria, Sweden, UK, Canada, China, France, Japan, Iran, Italy, Russia, and Nigeria.

This year we also celebrate the 10th anniversary of the MEMOCODE design contest. This year’s problem is to implement a hardware or software solution to efficiently compute k-means clustering on a large dataset. The winning team will present its solution at the conference.

We extend our sincerest thanks to the organizing committee, the program committee, and the subreviewers who generously volunteered their time and expertise to make this conference a success. That so many busy and talented people have taken the time to help with the organization of the conference and the formation of its technical program speaks well for the future of MEMOCODE and for formal methods in system design. We also thank Peter Milder, the Design Contest Chair; Sandeep Shukla, the Local Chair; and Yi Deng, the Publication Chair. We also wish to express our gratitude to the MEMOCODE sponsors: ACM, IEEE, IEEE Council on Electronic Design Automation, IEEE Circuits and Systems Society, Research-I Foundation at the Computer Science and Engineering Department of the Indian Institute of Technology Kanpur, and the Indian Institute of Technology Kanpur. We sincerely hope that you enjoy and benefit from the MEMOCODE 2016 program.

Jean-Pierre Talpin
General and Finance Chairs

Elizabeth Leonard and Klaus Schneider
Program Committee Co-Chairs