

# Editorial from the Incoming Editor-in-Chief

Ahmed Louri



IT is a great honor and privilege to have been appointed as the Editor-in-Chief (EIC) of the *IEEE Transactions on Computers* (TC) and it is with deep appreciation that I begin my duties in this position. TC is arguably the leading, most prestigious, and highly respected publication in the field of computing and the flagship, oldest archival journal in the portfolio of the *IEEE Computer Society*. TC has been serving the computing community for over 67 years with a tradition of unabated excellence in scholarship as it has upheld the highest standards of quality. This achievement could not have happened without the tireless efforts, dedication, and commitment of present and past EICs, editorial board members, devoted and loyal authors and reviewers, and the *IEEE Computer Society* support staff. Throughout the years, the position of EIC has been held by such outstanding leaders and innovators in the field as Taylor Booth, Richard Merwin, Robert A. Short, Harry D. Huskey, Tse-Yun Feng, M. T. Liu, E. E. Swartzlander, J. Liu, Jean-Luc Gaudiot, Viktor Prasanna, Fabrizio Lombardi, Albert Zomaya, and Paolo Montuschi. I would like to take this opportunity to especially thank Albert Zomaya, Jean-Luc Gaudiot, Fabrizio Lombardi, and Paolo Montuschi for helping me transition into this position and providing great advice and insight into the various operations of TC.

It is my primary goal and highest priority to preserve the strong reputation and excellence in scholarship of TC in the future. I will work with all constituencies (Associate Editors, Guest Editors, authors, reviewers, and staff members) to increase the visibility and impact of the journal, and to insure that TC will continue to lead in publishing fundamental, explorative, transformative, and significant articles in computing, while being an incubator for all multi-disciplinary and collaborative research stemming from the new trends in computing, applications, and technology developments.

TC faces many challenges, but is also presented with superb opportunities. We are witnessing dramatic changes in technology and computing. In fact, computing is entering a new era calling for a migration from an algorithm-based compute world to a machine-learning based, data-intensive, memory-centric paradigm in which human capabilities are significantly enhanced and magnified. While we are reaching the limits of Moore's Law and Dennard Scaling, demands for performance in excess of a million trillion floating-point operations per second (exaflops) are arising from novel paradigms to address applications in big data, machine learning, and analytics from nearly countless resources. Researchers are considering new ways forward, including, but not limited to, harnessing specialization (specialized hardware, specialized algorithms/languages, domain-specific architectures); exploiting parallel and distributed computing at scale; leveraging new technologies; and exploring new Non-von Neumann computing models in order to design future computing systems that can process and continuously analyze large volumes of data while providing balanced energy-performance-reliability-security-functionality-cost trade-offs. The successful path to create new computing paradigms in the post-Moore's Law era will require collaborative, inter- and multi-disciplinary, cross-layer research efforts covering all areas from application to micro-architecture to device technology.

I believe that TC, with its universal appeal, strong reputation, and highest publication standards, is uniquely positioned to provide a distinguished forum for the timely dissemination of seminal results on a worldwide basis in this new era of inter- and multi-disciplinary research in computing across the engineering and scientific communities. I will seize this opportunity and strive to expand the overall reach and visibility of TC by complementing the existing topical strengths of the journal with new and emerging themes in computing. More concerted efforts will be devoted to initiate new special sections (e.g., sections on best papers from top conferences, top picks, etc.), and special issues that target the emerging themes in computing and other areas through focused, high-quality submissions. I will soon be reaching out to our most prolific colleagues from academia, industry, government, and research laboratories and invite them to serve on the editorial board and move forward in sentence behind laboratories. I will seek an editorial board composition diverse in regards to distribution, gender, and technical expertise to maintain the inclusive nature of our community. As the technical coverage of TC continues to expand, I call on our authors and readers to submit their highest, best quality contributions to TC and to volunteer as guest and special section editors. I look forward to your submissions and much needed help for TC to continue to be the leading publication and a reference point for generations to come.

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