FOREWORD

Welcome to the 5th IEEE International Conference On Engineering Of Complex Computer Systems, (ICECCS'99) which this year is being held in conjunction with the annual meeting of the Software Engineering Standards Committee (SESC) in Las Vegas, Nevada. This year's conference is the fifth in a series dedicated to exploring areas related to complex computer-based systems, including the causes of complexity and means of avoiding, controlling, or coping with complexity. The goal of this conference is to bring together industrial, academic, and government experts from a variety of user domains and software disciplines, to determine how the disciplines' problems and solution techniques interact within the whole system.

ICECCS'99 is taking place at a time when the degree to which computers dominate our lives has never been greater. This domination is accompanied by an unforeseen inherent complexity. Complex computer systems are common in many sectors, such as manufacturing, communications, defense, transportation, aerospace, hazardous environments, energy, and health care. These systems are frequently distributed over heterogeneous networks, and are driven by many diverse requirements on performance, real-time behavior, fault tolerance, security, adaptability, development time and cost, long life concerns, and other areas. Such requirements frequently conflict, and their satisfaction therefore requires managing the trade-off among them during system development and throughout the entire system life.

The ICECCS'99 Call for Papers is notable in that the topic areas were rationalised and revised on the basis of the Foundation Workshop held during the last ICECCS'98 in Monterey, California to include, but not be limited to: system and software architecture and systems engineering; tools, environments, and languages for complex systems; complex data management, including distributed, real-time and mobile databases; formal methods and approaches to achieving dependability in complex systems; integration of heterogeneous technologies; software and system development processes for complex systems; human factors and collaborative (“groupware”) aspects; interoperability and standardization; and system and software safety. The Workshop was in direct response to feedback at past conferences, which called out strongly for the need to focus future ICECCS events in order for the still “fairly young” Technical Committee and its flagship annual conference to reach the expected level of maturity.

This year's conference continues the tradition of previous conferences. The Program Committee maintained consistently high selection criteria for accepted technical papers, including both innovative work and industrial experience reports. The published papers in this Proceedings are the result of this selection and address collaboration and distribution, representation, performance and trade-off analysis and the application of formal methods in complex computer-based systems and processes. The ICECCS'99 program is complemented by carefully selected tutorials and invited keynote speeches by John Musa, Alan Davis and Carlo Ghezzi. Additional panels, state-of-the-art presentations and tool exhibits round out the 1999 program.

Several people have contributed to the success of ICECCS'99. I would like to mention in particular the chair of the Technical Committee Mike Hinchey, the vice general chair Sten Andler, the steering committee chair Alex Stoyen, the program co-chairs Michal Young and Shaoying Liu, the publicity co-chairs Igor Ushakov and Jonas Mellin, the tutorials and exhibits co-chairs Anita Andler, Atsushi Kanai and Debra Herrmann. Others who deserve special mention are Luciano
Baresi for managing the conference web-site, Paulo Nesi for organizing the panel on complexity measurement, Victorial Stavridou and Nina Mascardo for local assistance, and all the program committee members for their effort in selecting the technical papers.

As always, we are indebted to our sponsor, The IEEE Computer Society. Special thanks must be given to Anne-Marie Kelly, Mary Kate Rada, Maggie Johnson, Marion Anderson, Dan Gibson, for their support and assistance in organizing the event, and especially Tonya Horsley for her unfailing dedication, assistance and perseverance. Special thanks also go to Deborah Plummer, Thomas Baldwin and Frances Titsworth of The IEEE Computer Society Press for doing such a great job on the Proceedings.

In conclusion, I wish all the delegates an enjoyable and rewarding experience at ICECCS'99, and a most enjoyable stay in Las Vegas. I wish to end with a look ahead to an exciting future. The Technical Committee (TC) will enter the new millennium under new leadership. Mauro Pezze will succeed Mike Hinchey as TC Chair. A new TC Vice Chair will be elected and announced at the TC’s general meeting to be held at ICECCS'99. The Sixth IEEE International Conference on Engineering of Complex Computer Systems (ICECCS'2000) is set to be held in Tokyo, Sept. 11-15, 2000 under the leadership of Professor Kenji Ohmori, Hosei University (Japan) as General Chair, and Prof. Jim Woodcock, Oxford University (UK), Prof. Alex Stoyen, University of Nebraska-Omaha (USA) and Prof. Shaoying Liu, Hiroshima City University (Japan) as Program Co-Chairs. Finally, the City of Skövde, Sweden (turning 600 years in 2001) is officially extending an invitation to ICECCS to place their 2001 conference in Skövde, Sweden.

John Harauz
Nuclear Operations Services and Support
Ontario Power Generation, Inc.
General Chair — ICECCS’99