# Editorial

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**Biographical notes:** N.P. Mahalik received his BE, an ME and a PhD in the years 1993 and 1998, respectively and completed Post-doctoral research in May 2002. He served at the University College of Engineering, Burla and was invited to Moscow State Technological University, Russia, as well as Gwangju Institute of Science and Technology, South Korea during 1990–2006. He is a Recipient of the National Overseas Scholarship and Brain-Korea fellowships for pursuing research, especially in the field of interdisciplinary areas. Currently, he is a Faculty Member in the College of Agricultural Sciences and Technology, California State University, Fresno, USA. His recent research areas fall under food processing and packaging automation technology. He has published more than 80 papers and five books and served as Editor, Guest Editor and Committee Member in several journals and conferences.

Mo M. Jamshidi (F-IEEE, F-ASME, F-AAAS, F-NYAS, F-TWAS) received the PhD in Electrical Engineering from the University of Illinois at Urbana-Champaign in 1971. He holds three honorary doctorate degrees and is Lutcher Brown Endowed Chaired professor at the University of Texas System at San Antonio Campus, San Antonio, TX, USA. Founding Director of Center for Autonomous Control Engineering (ACE) at the University of New Mexico (UNM). He is Director of the National Consortium on System of Systems Engineering. He has over 550 technical publications including 58 books and edited volumes. He is the Founding Editor/Co-editor of five journals and one magazine.

It was a nice year and we strongly believe that all our *IJAAC* readers did enjoy reading the issues published in 2008. We promise to bring more issues as we receive the papers from every corner of the world. We have included a wide range of authors – starting from research scholar to senior professors. Some authors are impatient to see their papers in the *IJAAC* instantly. Some, however, patiently wait to get the ultimate charm of 'Slow and Steady Wins the Race'. Without diverting this editorial too much toward patient versus impatient authors, we like to clarify that publication of research work is a painstaking procedure and all our authors understand this meticulously. Let us start thinking about the forthcoming issue Vol. 3, No. 2. The issue would contain 11 papers.

The titles of the papers published in this issue are as follows.

1 A frequency domain design of robust fuzzy PI controller for industrial processes

2 An algebraic approach to control design for systems with periodically time-varying parameters

3 Performance of a reactive power-based adaptive estimation of inverse rotor time constant for vector controlled induction motor drives

4 Control of greenhouse climate with guaranteed $H_\infty$ performance and $D$-stability

5 Minimum real time bang-bang fuzzy control system

6 Adaptive particle swarm optimisation of unified power flow controller for synchronous generator stabilisation.

The first paper of this issue deals with the fuzzy logic controllers for dynamic processes that can satisfy the performance demands. A frequency domain design criterion for the computation of the controller's scaling factors is derived by the authors. The simulation results reveal equivalent closed loop system performance to the more complex controllers.

The second paper deals with the application of simple PI and PID algorithms to such systems that have periodically time-varying parameters. The proposed algebraic synthesis method is based on general solutions of Diophantine equations. The authors have discussed the advantage of the technique. The capabilities of the control laws are also demonstrated based on three simulation examples.

A detail investigation on an adaptive estimation of rotor time constant is presented in the 3rd paper. The authors have shown that the adaptation mechanism forms a Model Reference Adaptive System (MRAS) for the online estimation of inverse rotor time constant for high performance Indirect Vector Controlled induction motor drive. The workability of the proposed MRAS is verified through extensive simulation studies. The stability of the system is investigated and a study on the sensitivity to stator and rotor parameters is reported. They advocate that the technique is simple and can also be implemented in the existing indirect vector controlled system without requiring any additional hardware.

Automation and control in greenhouse is not common to see. However, the researchers did experiments in investigating the control problem of a greenhouse climate. The study is based on fuzzy controller which can be successfully applied to control the internal climate. Based on the Takagi-Sugeno models an identification procedure to estimate the greenhouse models parameters has been considered and formulated. Simulation results show that the controller provides necessary performance as regards to disturbance rejection, the required transient responses with a good set-point tracking.

The paper number five presents work on spacecraft-satellite attitude systems. The author suggests that in order to save on-board thruster fuel, these systems should have minimum time control capability. Since the regulatory time depends on the initial attitude of the satellite, the possible solution to that effect is to apply bang-bang control strategy which can be accomplished with fuzzy logic controller using largest of maxima defuzzification technique. This paper shows how the non-linear relation between the initial attitude of satellite and spans of the fuzzy controller membership functions are optimised to achieve minimum response time by using Nelder-Mead simplex search method.

Last but not least, the final paper of this issue considers real and reactive power flow in a transmission line which can be instantaneously controlled by a pair of back-to-back power electronic converters. The paper presents optimal PI controller to enhance the dynamic performance and generator stability. The controller applies PSO for a wide range of operating conditions and disturbances. Comprehensive computer simulations are carried out to verify the scheme.