

Open research issues on Advanced Control Methods: Theory and Application

F. Neri

Department of Computer Science
University of Naples "Federico II"
Naples, ITALY
nerifil@gmail.com

Abstract - We are going to report here about state of the art works on advanced control methods both from the theoretical and practical point of view. A variety of algorithmic approaches (genetic algorithms, svm, etc.) and applicative domains (nuclear power plants, rotating machinery, etc.) are reported to illustrate the extension of the advanced control methods research area.

Keywords - control methods (methodology and applications), svm, feedback control, simulation.

Introduction

The format of special issues hosted in WSEAS Transactions on Systems is well proved and continues to develop over time [1-16]. The main aim of this special issue "Advanced control methods" is the presentation of state of the art contributions in the field originating from our community of authors. The hosted works explore the following topics:

- 1) combination of Support Vector Machines and Genetic Algorithms applied on a data originating from a Nuclear Power Plant monitoring system [17];
- 2) robust feedback control for magnetic levitation systems by using mixed sensitivity design method for controller synthesis [18];
- 3) use of simulation techniques to build decision support systems [19];
- 4) a novel approach to reduce vibration in rotating machinery and its control system [20];
- 5) continuous-time adaptive control systems for nonlinear processes dealing with different feedback sources [21].

Conclusions

Finally before diving into the collected research works [17-21], let us remember the reader that WSEAS Transactions on Systems has broad spectre of Special Issues, e.g. [1-16]. This is has the objective of creating an active and contributing research community around the journal and to present their latest efforts which have achieved wide interest among its

members. As a reader of the journal you are invited to take inspiration by the presented papers and to consider to submit your future works to the journal itself.
Enjoy your reading!

References

- [1] Ciufudean, C., Neri, F. (2014) Open research issues on Multi-Models for Complex Technological Systems. WSEAS Transactions on Systems, 13, in press.
- [2] Neri, F. (2014) Open research issues on Computational Techniques for Financial Applications. WSEAS Transactions on Systems, 13, in press.
- [3] Karthikeyan, P., Neri, F. (2014) Open research issues on Deregulated Electricity Market: Investigation and Solution Methodologies. WSEAS Transactions on Systems, 13, in press.
- [4] Panoiu, M., Neri, F. (2014) Open research issues on Modeling, Simulation and Optimization in Electrical Systems. WSEAS Transactions on Systems, 13, in press.
- [5] Doroshin, A. V., Neri, F. (2014) Open research issues on Nonlinear Dynamics, Dynamical Systems and Processes. WSEAS Transactions on Systems, 13, in press.
- [6] Hájek, P., Neri, F. (2013) An introduction to the special issue on computational techniques for trading systems, time series forecasting, stock market modeling, financial assets modeling WSEAS Transactions on Business and Economics, 10 (4), pp. 201-292.

- [7] Azzouzi, M., Neri, F. (2013) An introduction to the special issue on advanced control of energy systems (2013) WSEAS Transactions on Power Systems, 8 (3), p. 103.
- [8] Bojkovic, Z., Neri, F.(2013) An introduction to the special issue on advances on interactive multimedia systems. WSEAS Transactions on Systems, 12 (7), pp. 337-338.
- [10] Pekař, L., Neri, F. (2013) An introduction to the special issue on advanced control methods: Theory and application (2013) WSEAS Transactions on Systems, 12 (6), pp. 301-303.
- [11] Guarnaccia, C., Neri, F. (2013) An introduction to the special issue on recent methods on physical polluting agents and environment modeling and simulation WSEAS Transactions on Systems, 12 (2), pp. 53-54.
- [12] Neri, F. (2012) An introduction to the special issue on computational techniques for trading systems, time series forecasting, stock market modeling, and financial assets modeling WSEAS Transactions on Systems, 11 (12), pp. 659-660.
- [13] Muntean, M., Neri, F. (2012) Foreword to the special issue on collaborative systems WSEAS Transactions on Systems, 11 (11), p. 617.
- [14] Pekař, L., Neri, F. (2012) An introduction to the special issue on time delay systems: Modelling, identification, stability, control and applications WSEAS Transactions on Systems, 11 (10), pp. 539-540.
- [15] Volos, C., Neri, F. (2012) An introduction to the special issue: Recent advances in defense systems: Applications, methodology, technology WSEAS Transactions on Systems, 11 (9), pp. 477-478.
- [16] Neri F., Traffic packet based intrusion detection: decision trees and generic based learning evaluation. WSEAS Transactions on Computers, WSEAS Press (Wisconsin, USA), issue 9, vol. 4, 2005, pp. 1017-1024.
- [17] Awadalla, M., Abdien, A. K., Rashad, S. M., Ahmed, A., Al Abri D. (2014). Classification of faults in nuclear power plant. WSEAS Transactions on Systems 13, in press.
- [18] Santosh KR. Choudhary (2014). Robust Feedback Control Analysis of Magnetic Levitation System. WSEAS Transactions on Systems 13, in press.
- [19] Romano E., Cesarano, C., Iuliano, D. (2014). An Hybrid Simulation model to support decision making in a manufacturing plant. WSEAS Transactions on Systems 13, in press.
- [20] Xin, P., Hai-qi, W., Jin-ji, G., Yu-zhe, M. (2014). Study on online active balancing system of rotating machinery and target control method. WSEAS Transactions on Systems 13, in press.
- [21] Dostal, P., Bobal, V., Vojtesek, J., Bronislav, C. (2014). Adaptive control of nonlinear processes using two methods of parameter estimation. WSEAS Transactions on Systems 13, in press.