Call For Papers

WSEAS TRANSACTIONS ON SYSTEMS

Special Issue on Time Delay Systems: Modelling, Identification, Stability, Control and Applications

I. AIM AND SCOPE

In feedback control systems, delay as a generic part of many processes is a phenomenon which unambiguously deteriorates the quality of a control performance. Modern control theory has been dealing with this problem since its nascence – the well known Smith predictor has been known for longer than five decades. Systems with delays in technological and other processes are usually assumed to contain delay elements in input-output relations only, which results in shifted arguments on the right-hand side of differential equations. All the system dynamics is hence traditionally modelled by point accumulations in the form of a set of ordinary differential equations. However, this conception is somewhat restrictive in effort to fit the real plant dynamics since inner feedbacks can be of time-distributed or delayed nature. Time delay (hereditary, anisochronic) models, contrariwise, offer a more universal dynamics description applying both integrators and delay elements on the left-hand side of a differential equation, either in a lumped or distributed form.

Modelling, identification, stability analysis, stabilization, control, etc. of time delay systems are challenging and fascinating tasks in modern systems and control theory as well as in academic and industrial applications. Many related problems are unsolved and many questions remain unanswered.

The aim of this special issue is to highlight the most significant recent developments on the topics of time delay systems, their modelling and identification, stability analysis, various control strategies in state-space as well as time domain, and interesting academic and real-life applications.

II. TOPICS COVERED

Authors are invited to submit their original and unpublished work in the areas including (but not limited to) the following:

- Time delay models
- New modelling approaches
- Time-varying models
- Delay-varying models
- Latest trends in time delay systems identification
- Neutral systems analysis
- Advances in the theory of stability
- Delay-dependent stability

- Delay-independent stability
- Krasovskii-type stability approach
- Razumikhin-type stability approach
- Input-output stability
- New results in controllability and observability
- Advances in finite dimension approximations
- Filtering and estimation
- Stabilizability studies

- Robustness issues
- Numerical methods
- Networked systems
- Nonlinear systems
- Algebraic control methods

- Robust control methods
- Adaptive control strategies
- Convincing applications in engineering, physics,
  biology, economics, etc.

III. IMPORTANT DATES

- June 30, 2012: Submission deadline
- September 30, 2012: Notification of the first-round review
- November 30, 2012: Revised submission due
- January 31, 2013: Publication of the accepted papers.

IV. SUBMISSION

Manuscripts should be prepared according to the formatting instructions of available at WSEAS Transactions on Systems at http://www.worldses.org/journals/systems/index.html

Manuscripts submitted to the Special Issue on Time Delay Systems: Modelling, Identification, Stability, Control and Applications are to be submitted following the standard submission process and notifying the Guest Editors as well.

All submitted manuscripts will be reviewed using the standard procedure that is followed for regular submissions.

V. GUEST EDITORS

Libor Pekar, MSc.
Dept. of Automation and Control Engineering
Faculty of Applied Informatics
Tomas Bata University in Zlín
Zlín, Czech Republic
email: pekar@fai.utb.cz

Prof. Filippo Neri
Dept. of Computer Science
University of Naples
Naples, Italy
email: filippo.neri@unina.it, nerifil@gmail.com