CoDIT 2018

CALL FOR PAPERS
SPECIAL SESSION ON
"Stability and Control for Nonlinear Systems: tools and methods based on Lyapunov functions"
for CODIT'18
April 10-13, 2018 – Thessaloniki, Greece

Session Co-Chairs :

Dr. Olena Kuzmych, Lesya Ukrainka Eastern European National University – Ukraine
Prof. Oksana Mekush, Lesya Ukrainka Eastern European National University – Ukraine
Prof. Kateryna Solych, Lesya Ukrainka Eastern European National University – Ukraine

Session description

This special session deals with the problem of using various approaches of Lyapunov function based methods that play a key role in both stability analysis and control synthesis for nonlinear dynamical systems. We'll discuss actual and important problems to develop optimal control strategies of technical systems with aid of model-based modern technologies and Lyapunov functions tools. We uncover recent developments in methodologies, techniques, and applications in the area of nonlinear control design and stability for complex systems. We'll focus an attention on evolution of Lyapunov stability theory and its applications that have received a great deal of attention recently, to exhibit recent investigations in stability analysis and control design.

The goal of the session is to provide a platform for academical and industrial communities to exchange their latest results and to identify main issues and challenges for future investigation on Lyapunov functions theory for dynamical systems. The purpose is to exhibit the concepts, theoretical tools, methods based on Lyapunov functions that can be applied for stability analisys and developing an effective control for technical applications. This includes well-known and newest model-based technics for state-space models of nonlinear systems and their practice applications in science and engineering.

The topics of interest include, but are not limited to:

- Modeling and stability of dynamical systems based on Lyapunov functions
- Lyapunov functions in model-based control theory: recent trends, perspectives and open questions
- Evolution of Lyapunov stability theory and its application in control engineering, automotive, aerospace, high-tech, robotic applications, chemical processes, biological systems, renewable energy systems.
- Control for nonlinear dynamical systems: advances of LPV-based and Polytopic System methods, Sliding Mode control, Linear Matrix Inequality (LMI) approache, Takagi–Sugeno (T-S), Fuzzy-Model-Based methodologies, a Sum of Squares (SOS) and Control Lyapunov Function (CLF) approaches, others.

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **December 10, 2017: http://controls.papercept.net/conferences/scripts/start.pl**. In PaperCept, click on the **CoDIT 2018 link "Submit a Contribution to CoDIT'18" and follow the steps.**

All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).

DEADLINES

December 10, 2017: deadline for paper submission

February 4, 2018: notification of acceptance/reject

February 28, 2018: deadline for final paper and registration.