CALL FOR PAPERS
SPECIAL SESSION ON
"Lyapunov-based methods for nonlinear control and stability: fundamental concepts, applications and new challenges."
for CODIT'17
April 5-7, 2017 – Barcelona, Spain

Session Co-Chairs :
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Session description

The main objective of this invited session is to exhibit the various challenges of Lyapunov function based methods that play a key role in both stability analysis and control synthesis for nonlinear dynamical systems. We uncover recent developments in methodologies, techniques, and applications in the area of nonlinear control design and stability for complex systems. This deals with actual and important problems to develop optimal control strategies of technical systems with aid of model based modern technologies and Lyapunov functions tools.

The idea is to focus attention on evolution of Lyapunov stability theory and its applications that have received a great deal of attention recently, to exhibit recent trends, perspectives and open questions in stability analysis and control design in the Lyapunov method's framework and new challenges posed by emergent applications.

Both theoretical and application results are important. A second objective 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.

We invite researchers and experts to submit original research papers and survey articles on the following topics, but are not limited to:

- Stability and stabilization of dynamical systems, system analysis with aid of Lyapunov functions
- Evolution of Lyapunov stability theory and its application in control engineering, automotive, aerospace, high-tech, robotic applications, chemical processes, biological systems, renewable energy systems.
- Lyapunov functions in automatic, optimal, model-based control theory.
- Controller and observer synthesis 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.
- Fault Diagnosis and Fault-tolerant control of nonlinear systems
- Stability and control of hybrid and switched systems
- Lyapunov Functions and Lyapunov-Krasovsky functionals methods for stability of nonlinear systems, Lurie regulation systems, system with delay.

SUBMISSION

Please submit your full paper choosing the right Special Session (**06-Special Session: Lyapunov-based methods for nonlinear control and stability**) on the EasyChair for CoDIT'17 website:
https://easychair.org/conferences/?conf=codit17

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).

IIMPORTANT DATES

December 4, 2016: deadline for paper submission
February 2, 2017: notification of acceptance/reject
February 26, 2017: deadline for final paper and registration.