

TIME DELAY SYSTEMS Webinar

TDS

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Recent progress in the Lyapunov-Razumikhin approach



DENIS EFIMOV

Senior Researcher
Valse team, Inria
University of Lille

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Event will take place via Zoom

ABSTRACT: For the stability analysis of time-delay systems, two main approaches exist: one based on the use of Lyapunov-Krasovskii functionals and the other on the Lyapunov-Razumikhin approach. The first method provides the necessary and sufficient conditions for stability and allows for an accurate estimation of convergence rates. The second is known for its sufficient conditions and has the advantage of simple application in nonlinear contexts (Lyapunov functions for systems without delay can be tested as preliminary solutions). This talk presents recent results on the development of the Lyapunov-Razumikhin approach: estimation of convergence rates, integral version, and cases where this method is also necessary.

BIO: Denis Efimov received a Ph.D. degree in Automatic Control from the Saint-Petersburg State Electrical Engineering University (Russia) in 2001 and a Dr.Sc. degree in 2006 from the Institute for Problems in Mechanical Engineering RAS (Saint-Petersburg, Russia). From 2006 to 2011, he worked in the L2S CNRS (Supelec, France), the Montefiore Institute (University of Liege, Belgium), and the IMS CNRS lab (University of Bordeaux, France). In 2011, he joined Inria. Since 2018 he has been the scientific head of the Valse team of Inria. He co-authored over 250 scientific articles in top peer-reviewed journals and coordinated several scientific projects. He is a member of several IFAC TCs and a Fellow of IEEE. He is an Associate Editor for Automatica and a Senior Editor for Systems and Control Letters.



Questions? Contact: Gabor Orosz, orosz@umich.edu