

ΔΙΑΛΕΞΗ

Το εργαστήριο Αυτοματισμού και Ρομποτικής
του Τμήματος Ηλεκτρολόγων Μηχ. και Μηχ. Υπολογιστών ΑΠΘ
σας προσκαλούν στη διάλεξη του:

Δρ. Νικόλαου Μπεκιάρη - Λυμπέρη

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με θέμα:

“Nonlinear Control of Transport PDE-ODE Interconnections”

Η εκδήλωση θα πραγματοποιηθεί στην **Αίθουσα 8 – Πτέρυγα Τμήματος Ηλεκτρολόγων Μηχανικών & Μηχανικών Υπολογιστών** την **Παρασκευή 23 Φεβρουαρίου 2018, στις 13:00.**

Περίληψη: Numerous physical processes are described by transport PDE-ODE interconnections. LTI systems with constant input delays is perhaps the most elementary class in this category, where the transport speed is constant and the boundary of the spatial domain is fixed, besides the plant being linear. For this class of systems, predictor feedback is now a well-known delay-compensating control design tool. The situation becomes dramatically more complex when, in addition to the ODE being nonlinear, the speed of propagation or the boundary of the domain is a nonlinear function of the overall infinite-dimensional state (i.e., of the PDE or the ODE state) of the system. For such interconnections, I will present predictor-feedback design ideas, which I will then illustrate with several application examples, including, traffic systems (where the transport speed is a nonlinear function of the PDE state), extruders for 3D printing (giving rise to a system with ODE state-dependent moving boundary), and metal rolling (where the transport speed is a nonlinear function of the ODE state).



Bio: Nikolaos Bekiaris-Liberis, received the Ph.D. degree in Aerospace Engineering from the University of California, San Diego, in 2013. From 2013 to 2014 he was a postdoctoral researcher at the University of California, Berkeley and from 2014 to 2017 he was a research associate and adjunct professor at Technical University of Crete, Greece. Dr. Bekiaris-Liberis is currently a Marie Sklodowska-Curie Fellow at the Dynamic Systems & Simulation Laboratory, Technical University of Crete. He has coauthored the SIAM book *Nonlinear Control under Nonconstant Delays*. His interests are in delay systems, distributed parameter systems, nonlinear control, and their applications.

Dr. Bekiaris-Liberis was a finalist for the student best paper award at the 2010 ASME Dynamic Systems and Control Conference and at the 2013 IEEE Conference on Decision and Control. He received the Chancellor's Dissertation Medal in Engineering from the University of California, San Diego, in 2014. Dr. Bekiaris-Liberis received the best paper award in the 2015 International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies. He is the recipient of a 2017 Marie Sklodowska-Curie Individual Fellowship Grant.

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