



Fall 2017 Seminar Series

Delay Compensation in Control Systems

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11:00 AM – HEC 450

Many control systems are subject to time delays. For instance, input delays may be caused by time consuming information gathering, or gestation delays in biological processes. One approach to solving control problems under input delays involves solving the problems with the delays set to zero, and then computing upper bounds on the input delays that the systems can tolerate while still realizing the control objective. This is often done using Lyapunov-Krasovskii functions and is well suited when the delays are short. For longer delays, the reduction model approach is often used but can lead to implementation challenges because of the presence of distributed terms in the control. A third approach to delay compensation involves sequential predictors, which can compensate for arbitrarily long input delays using stacks of differential equations instead of distributed terms. This talk will review recent developments in this area, and is based in part on the speaker's joint work with Miroslav Krstic, Frederic Mazenc, Fumin Zhang, and several students.

MICHAEL MALISOFF

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Michael Malisoff is the Roy P. Daniels Professor #3 in the Louisiana State University College of Science. He earned his PhD in Mathematics in 2000 from Rutgers University in New Brunswick, NJ. His research is on systems and control, with an emphasis on engineering applications. One of his projects involved marine robots and included field work at Grand Isle, LA. Over the past 14 years, he has been awarded 7 research grants from the US National Science Foundation as Principal Investigator totaling \$1.3 million. His honors at LSU included the Flagship Faculty Honor, and the Rainmaker Mid-Career Scholar Award. He has served as Associate Editor for IEEE Transactions on Automatic Control and SIAM Journal on Control and Optimization.