



UTC Institute for Advanced Systems Engineering Seminar Series



Enrico Bini, Ph.D.

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Optimal Sampling for Linear Control Systems

Wednesday, December 9, 2015 12:00 p.m. – 1:00 p.m. Storrs Campus, ITEB 336

Abstract: In embedded control systems, reducing the number of sampling instants per time unit without degrading the control performance can lead to several benefits such as energy savings, reduced communication bandwidth, etc.

In this talk the problem of optimal sampling is discussed. Such a problem is solved explicitly for first-order systems. The explicit solution of the optimal sampling reveals a surprising connection with the problem of quantization of the optimal continuous-time control input.

Speaker Bio: Enrico Bini is Assistant Professor at the Scuola Superiore Sant'Anna (Pisa, Italy) and the youngest researcher with the qualification as Full Professor in Computer Engineering in Italy. In 2012-13, he was Marie-Curie fellow at Lund University investigating resource management and Cyber-Physical Systems design (Karl-Erik Arzen). In 2004, he completed the PhD on Real-Time Systems at Scuola Superiore Sant'Anna (awarded best PhD thesis of the university). In January 2010, he also completed a Master degree in Mathematics with a thesis on optimal sampling for linear control systems. He visited the University of North Carolina at Chapel Hill (Sanjoy Baruah, Jim Anderson) and INRIA Rocquencourt (Yves Sorel).

He has published more than 80 papers (2 best-paper awards, 3 most cited papers @ECRTS, 1 most cited @RTSS) on real-time scheduling, operating systems, and optimization methods for real-time and control systems. His more recent research interests are on optimal management of distributed and parallel resources. His service to the research community includes the organization of 9 events, the participation in 51 Technical Program Committees, the review of 9 PhD thesis and about 40 papers/year, in the above mentioned research areas.