WPI **Aerospace Engineering Program**
Graduate Seminar Series 2015-16

Seminar Announcement

Wednesday, September 09, 2015
1:00 PM – 1:50 PM
HL 218

Control Theory and Artificial Intelligence: Synergies and Perspectives

Dr. Lena Valavani
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Abstract:
Recently with the advent of modern AI, tremendous strides have been made in computational capabilities to process tera and peta byte size data, which was inconceivable ten or even five years ago. This fact is having tremendous implications in widely diverse areas of applications, where data are abundant and the development of principled methodologies to process them need to be appropriately matched to the nature of the problem. Not surprisingly, control theory has a pivotal role to play in these new developments, where the fundamental paradigms are radically changed. The seminar will discuss new directions and tendencies and provide perspectives on constructive synergies between Control Theory and AI. Examples will be presented that illustrate the benefits of such a synergy, in two or three fundamentally different application areas.

Speaker Bio:
Dr. Valavani holds a B.S.in Physics, Barnard College and an M.S., M. Phil., and Ph. D. in Engineering and Applied Science from Yale University. After postdoctoral positions at Yale and MIT (LIDS), she joined MIT's Department of Aeronautics and Astronautics where she was Boeing Associate Professor. She was also Senior Scientist, Systems Engineering, Volpe National Transportation Systems Center; founder and President of Hellenic Space Systems, S.A.to July 2012; Visiting Faculty, National Technical University of Athens and National and Kapodistrian University of Athens, Greece. In spring of 2010, she was Distinguished Visiting Faculty, Lund University. She is currently Distinguished Member of the Technical Staff, Draper Laboratory.

Dr. Valavani's research interests include nonlinear, robust and adaptive control and optimization, stochastic estimation & system identification. Her current focus is in Autonomy, Machine Learning, Command and Control & Robust Navigation (GPS denied, A2/AD). She has over 100 publications, 3,000 citations and delivered over 50 invited lectures. She has supervised 27 Ph. D students and over 50 Master's students.

Dr. Valavani served as Associate Editor of IEEE Transactions of Automatic Control, Automatica, AIAA Journal of Guidance Navigation and Control, and of the Int'l Journal on Robust & Nonlinear Control for a number of years. She also served on the Review Boards of AFOSR, ONR, NSF & NRC, National Academy of Sciences. Was elected to Board of Directors, AIAA, N. E., as General Secretary. Consulted for Draper, Lincoln Lab & Bell Helicopter. She served on the (AGARD) Systems Concepts Integration Panel (SCI /RTO) for over 10 years and is Associate Fellow, AIAA.