

UTC INSTITUTE FOR
ADVANCED SYSTEMS ENGINEERING

DISTINGUISHED LECTURE

Data, manifold learning, and the modeling of complex/multiscale systems

Yannis will discuss some recent developments on the connection between data mining/machine learning on the one hand, and the modeling of complex/multi-scale problems on the other. The talk addresses the interface between fine scale, atomistic/stochastic codes and coarse-grained, macroscopic descriptions. In particular, Yannis will discuss (a) the reduction of stochastic simulations through diffusion maps and the use of the Mahalanobis distance, and issues of heterogeneous data fusion; (b) the issue of extending diffusion-map based simulations to new configurations/conditions; and (c) the issue of not only reducing the number of independent variables, but also reducing the number of independent parameters by taking advantage of data-mining tools.

Yannis Kevrekidis

Yannis Kevrekidis studied Chemical Engineering at the National Technical University in Athens. He then followed the steps of many alumni of that department to the University of Minnesota, where he studied under Rutherford Aris and Lanny Schmidt (also Dick McGehee and Don Aronson in Mathematics) on computational studies of dynamical systems, which still remains the main theme of his research. He was a Director's Fellow at Los Alamos in 1985-86. He has been at Princeton since 1986, where he teaches Chemical Engineering and also Applied and Computational Mathematics. His research interests are centered around the dynamics of physical and chemical processes, types of instabilities, pattern formation, and their computational study. Recently he has also developed an interest in multi-scale computations. He has been a Packard Fellow and the Ulam Scholar at LANL. He holds the Colburn and Wilhelm Awards of the AIChE, and a Humboldt Prize. This year he is a Hans Fischer senior Fellow at IAS/TU Muenchen and an Einstein Visitor at the Free University Berlin.

Thursday, March 10, 2016

11:00 am- 12:00 pm

UConn, Storrs Campus – Dodd Konover Auditorium

To view live webcast click here

Upcoming Distinguished Lectures

10/06/16- Olivier de Weck
Maximizing lifecycle value of
complex man-made systems

10/17/16 - Wei Chen
Design under uncertainty;
multidisciplinary design
optimization; simulation-
based design

Upcoming Seminars

03/08/16 - Harrison Kim
Complex Systems Analytics: a
Promising Enabler for
Sustainable Design and
Manufacturing

04/12/16 - Mark Biamonte
Systems Engineering in Space
Suit Development

04/19/16 - Quan Long
Efficient Bayesian Optimal
Experimental Design for
Physical Models

05/03/16- Calin Belta
Formal Methods for
Dynamical Systems

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