

THE WILLIAM E. BOEING DEPARTMENT OF **AERONAUTICS & ASTRONAUTICS**

... welcomes ...

DANIEL INMAN UNIVERSITY OF MICHIGAN

Avian Inspired Multifunctional Morphing Air Vehicles

Morphing or shape changing wings on aircraft is as old as the Wright Brothers who used wing warping actuated by cables for flight control. Because of the need for rigid wings to avoid flutter this type of flight control gave way to discrete control surfaces (flaps, rudder, aileron, elevator). In the late 1990's interest returned to using shape changing wing configurations to replace discrete control surfaces. Most solutions were based on using conventional actuation schemes and were not much influenced by avian motions. Here we trace some of the more recent morphing efforts and discuss a program to integrate smart, multifunctional materials and structures into avian inspired morphing aircraft for flight control of unmanned air vehicles.

Suggested reading for audience members including students:

Morphing Aerospace Vehicles and Structures, Ed. Valasek, J., Wiley, 2012.

The William E. Boeing Chair's Distinguished Seminar Series brings scholars of national and international reputation who have made an impact in the field of aerospace engineering and beyond. This seminar series will cover a diversity of topics of current interest to those in academia, industry and the general public. It is our hope that these monthly seminars will encourage an exchange of ideas and bring aerospace engineering and science to the forefront.



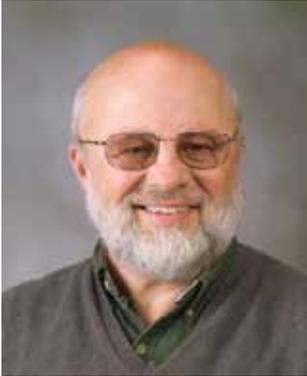
WILLIAM E. BOEING
DEPARTMENT OF AERONAUTICS & ASTRONAUTICS
UNIVERSITY of WASHINGTON

Monday, January 23, 2017 @ 4:00pm
Electrical Eng. Bldg. Rm 105 | UW Seattle

Visitor RSVP: contact@aa.washington.edu

THE WILLIAM E. BOEING DEPARTMENT OF
AERONAUTICS & ASTRONAUTICS

... Distinguished Guest Speaker ...



DANIEL INMAN
UNIVERSITY OF MICHIGAN

*Professor & Chair
Department of Aerospace Engineering
University of Michigan*

Daniel J. Inman received his Ph.D. from Michigan State University in Mechanical Engineering in 1980 and is Chair of the Department of Aerospace Engineering at the University of Michigan, as well as the C. L. "Kelly" Johnson Collegiate Professor. Since 1980, he has published eight books (on vibration, energy harvesting, control, statics, and dynamics), eight software manuals, 20 book chapters, over 330 journal papers and 600 proceedings papers, given 62 keynote or plenary lectures, graduated 62 Ph.D. students and supervised more than 75 MS degrees. He works in the area of applying smart structures to solve aerospace engineering problems including energy harvesting, structural health monitoring, vibration suppression and morphing. He is a Fellow of ASME, AIAA, SEM, IIAV and AAM.



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