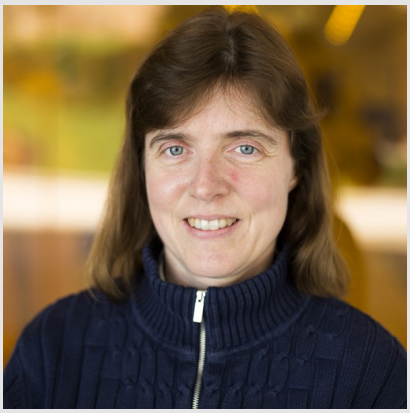
MAE Seminar SERIES

THURSDAY,
DECEMBER 6
3:30 PM
114 HOCHSTETTER



Dr. Ella M. Atkins

Professor

Aerospace Engineering Department

University of Michigan

DATA-TO-DECISIONS FOR SAFE AUTONOMOUS FLIGHT

ABSTRACT

Traditional sensor data can be augmented with new data sources such as roadmaps and geographical information system (GIS) Lidar/video to offer emerging unmanned aircraft systems (UAS) and urban air mobility (UAM) a new level of situational awareness. This presentation will summarize my group's research to identify, process, and utilize GIS, map, and other real-time data sources during nominal and emergency flight planning. Specific efforts have utilized machine learning to automatically map flat rooftops as urban emergency landing sites, incorporate cell phone data into an occupancy map for risk-aware flight planning, and extend airspace geofencing into a framework capable of managing all traffic types in complex airspace and land use environments. The presentation will end with a discussion of the Flying Fish Autonomous Unmanned Seaplane developed for DARPA in 2006-2009.

BIO SKETCH

Dr. Ella Atkins is a Professor in the University of Michigan's Aerospace Engineering Department where she directs the Autonomous Aerospace Systems (A2SYS) Lab and is Associate Director of the Robotics Institute. Dr. Atkins holds B.S. and M.S. degrees in Aeronautics and Astronautics from MIT and M.S. and Ph.D. degrees in Computer Science and Engineering from the University of Michigan. She is past-chair of the AIAA Intelligent Systems Technical Committee, AIAA Associate Fellow, small public airport owner/operator, private pilot, and Part 107 UAS pilot. She served on the National Academy's Aeronautics and Space Engineering Board, the Institute for Defense Analysis Defense Science Studies Group, and an NRC committee to develop an autonomy research agenda for civil aviation. Dr. Atkins has built a research program in decision-making and control to assure safe contingency management in manned and unmanned Aerospace applications. She is currently Editor-in-Chief of AIAA Journal of Aerospace Information Systems (JAIS).

University at Buffalo
Department of Mechanical and Aerospace Engineering
School of Engineering and Applied Sciences