



McGill

Mechanical Engineering Colloquium

Friday, April 10 2015, 11:00-12:00pm
Macdonald Engineering Building 267

Prof. Hugh Liu

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M3H 5T6*

Wildfire Monitoring using Unmanned Aerial Vehicles

Abstract:

Recent research on wildfire monitoring using unmanned aerial vehicles (UAVs) are presented. The talk will give a brief introduction of fire modeling, followed by the main idea of monitoring fire frontline by flying UAVs using onboard thermal cameras. We propose a novel formulation to estimate the fire propagation profile. An enhanced cooperative Kalman filter for dynamic conditions is developed. The feasibility of the algorithm is validated by simulation results. In addition, preliminary flight tests and results are presented to demonstrate its potential in practice.

Biography:

Dr. Hugh H.T. Liu is a full professor at the University of Toronto Institute for Aerospace Studies (UTIAS), Toronto, Canada, where he also serves as the Associate Director, Graduate Studies. His research work over the past several years has included a number of aircraft systems and control related areas, and he leads the "Flight Systems and Control" (FSC) Research Laboratory. Dr. Liu's research interests include autonomous unmanned systems development, cooperative control, and integrated modeling and simulation. Dr. Liu received his Ph.D. in mechanical engineering of the University of Toronto in 1998. He is a Fellow of CSME, an Associate Fellow of AIAA and active member of IEEE and CASI. Dr. Liu is also a registered Professional Engineer in Ontario.