



Managing Drone Swarms for Urban and Emergency Response Operations

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Abstract

The rise of Big Data analytics and urban informatics has led to increasing interest in gathering useful real time data in urban systems. Unmanned Aerial Vehicles (UAVs) are a technology that is gathering momentum as a viable mobile sensor for both routine data collection and emergency response operations. Managing groups of UAVs, or drones, presents a host of challenges related to balancing energy and data storage. This talk begins with a presentation of our earlier work developing a middleware solution to managing drone swarms for urban sensing. It then provides a preview of our ongoing work which is motivated by recent natural disasters and wildfires, which we believe present a more realistic framework for deployment of these swarms. While deploying drone swarms for emergency response can avoid some of the air traffic control issues which will prevent near term large scale deployment in urban areas, emergency response operations have their own air traffic needs (for air tankers and helicopters for example) which will require careful coordination with and between public agencies.

This work was done in collaboration with several other researchers but the key contributor is Prof. Di Wu of Hunan University (UCI CS PhD, 2013).

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Time: 17:00 – 18:00

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The Hong Kong Polytechnic University,
Hung Hom, Kowloon, Hong Kong

Speaker's Biography

Prof. Amelia Regan is a Professor of Computer Science and Transportation Systems Engineering at the University of California, Irvine. Her research interests include dynamic and stochastic network optimization, optimal contracting, logistics systems, sensor and vehicular networks, connected and automated vehicles, pedestrian and cyclist safety, and mitigation of environmental impacts of transportation systems. Her research has been supported by various sources including the National Science Foundation, the Transportation Research Board and JB Hunt Transport, and has been published in over 140 peer reviewed articles. Her PhD students have taken faculty jobs in Civil Engineering, Logistics, Industrial and Systems Engineering, Management, Marketing and Computer Science in the USA, Canada, Hong Kong, South Korea, Taiwan and China as well as development and consulting positions in Technology and Logistics and Supply Chain Management. A graduate of the University of Pennsylvania, Regan later earned an MS in Applied Mathematics from the Johns Hopkins University, and MSE and PhD degrees in Civil Engineering at the University of Texas, Austin.

***** All Interested Are Welcome *****

For further information, please contact Prof. Anthony Chen at Tel. 3400-8327.

Free Admission. Please reserve your seat with Ms. Tiffany Szeto by email: tiffany.szeto@polyu.edu.hk.

Certificates of attendance will be provided to participants who attend the whole seminar.