Distinguished ADSE Seminar Series

Department of Advanced Design and Systems Engineering
香港城市大學
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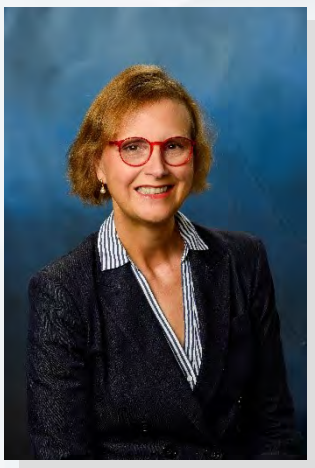
Innovative Uses of Drones for Last Mile Delivery with a Focus on Healthcare



18 Apr 2023 (Tue) 10:30 am

Seminar Link: https://cityu.zoom.us/j/96720886736

Professor Alice E. SMITH

Joe W. Forehand/Accenture
Distinguished Professor,
Department of Industrial and
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Abstract

This seminar discusses a novel strategy for employing a combination of drones and delivery vehicles, such as trucks, for last mile delivery to homes and businesses. This strategy uses drones to resupply trucks during the day for same day delivery, as orders are made available at a central depot. The trucks deliver the orders to the customers but do not have to return to the depot during the day since they are being supplied by the drones for new orders. A mathematical model is formulated and solved for this strategy. Both deterministic demand and stochastic demand scenarios are considered. We show that this strategy offers benefits in customer service and cost of delivery compared to traditional truck delivery only. We focus our work on healthcare and specifically the delivery of medical supplies and tests in underserved rural environments. We are complementing our algorithmic and computational work with animations and a limited physical field trial. This work has been partly sponsored by the Toyota Company and the Raymond Company.

About the Speaker

ALICE E. SMITH is the Joe W. Forehand/Accenture Distinguished Professor of the Industrial and Systems Engineering Department at Auburn University, where she served as Department Chair from 1999-2011. She also has a joint appointment with the Department of Computer Science and Software Engineering. Previously, she was on the faculty of the Department of Industrial Engineering at the University of Pittsburgh from 1991-99, which she joined after industrial experience with Southwestern Bell Corporation. Dr. Smith has degrees from Rice University, Saint Louis University, and Missouri University of Science and Technology.

Dr. Smith's research focus is analysis, modeling, and optimization of complex systems with emphasis on computation inspired by natural systems. She holds one U.S. patent and several international patents and has authored more than 200 publications which have garnered over 17,000 citations and an H Index of 51 (Google Scholar). She is the editor of Women in Computational Intelligence: Key Advances and Perspectives on Emerging Topics and Women in Industrial and Systems Engineering: Key Advances and Perspectives on Emerging Topics. Several of her papers are among the most highly cited in their respective journals including the most cited paper of Reliability Engineering & System Safety and the 3rd most cited paper of IEEE Transactions on Reliability. She won the E. L. Grant Best Paper Awards in 1999 and in 2006, and the William A. J. Golomski Best Paper Award in 2002. Dr. Smith is the Editor in Chief of INFORMS Journal on Computing and an Area Editor of Computers & Operations Research.

More about the Speaker: https://www.cityu.edu.hk/adse/seminar_2022-23_14.htm

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