

SPRING 2017 METRANS RESEARCH SEMINAR

Wednesday, January 18, 2017

12:00 PM to 1:30 PM

USC University Park Campus –

Hughes Aircraft Electrical Engineering Building (EEB) 248

RSVP to Nicole Guo at

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Quantifying the Impact of Next-Generation Modes of Delivery

Presented by **John Carlsson**,

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Abstract

A new delivery paradigm has emerged for transporting goods on the so-called last mile to households, pioneered by such services as Google Shopping Express, Amazon Prime, Instacart, and Walmart To Go, among others. Such services reduce the need for households to travel because one can simply order products online and have them delivered quickly to one's doorstep. However, it is not yet understood (or, more specifically, quantified) to what degree such services result in social benefits vis-a-vis congestion and carbon emissions.

The objective of this project is to apply tools from geospatial analysis, geometric probability theory, and mathematical optimization to develop an integrated model that predicts the changes in congestion and carbon footprint that result when households in a geographic region adopt (or reject) such delivery services.

John Gunnar Carlsson, Ph.D., is an assistant professor in the Epstein Department of Industrial and Systems Engineering of USC's Viterbi School of Engineering. He received his Ph.D. from the Institute for Computational and Mathematical Engineering (ICME) at Stanford University in 2009 and his A.B. in mathematics and music from Harvard College in 2005. Prof. Carlsson works on algorithms for solving problems in continuous location theory, and more generally, optimization problems with geographic aspects. His research is supported by DARPA, the Office of Naval Research, the Air Force Office of Scientific Research, the National Science Foundation, and the US Department of Transportation, and he was previously supported by an NSF GOALI grant, the Minnesota Department of Transportation, and the Boeing Company.



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