



ENVIRONMENTAL AND ECOLOGICAL ENGINEERING

EEE Seminar

DATE: Wednesday, October 7, 2015

TIME: 3:30 P.M.

LOCATION: Potter 234, Fu Room

Complex Systems Design Analytics: a Promising Enabler for Sustainable Design

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Abstract

Designing large-scale, complex systems has been a challenging task, particularly in the predictive context of life cycle. Key challenges arise in various stages of system's life cycle – pre-life, usage life, and end-of-life – where massive-scale data is generated and captured from complex systems design, operations, and disposal. Green Profit Design – a new term coined by Prof. Kim's team – shows that there is a strong link between sustainable product design, user generated contents in the social network service, and corporate profit generation. Green Profit Design has been shown to be successful in designing optimal, sustainable product portfolio by use of engineering design optimization and knowledge discovery for user preference capture. In this presentation, the speaker will present an overview of the new research directions based on the findings from the recent studies sponsored by the National Science Foundation and Deere and Co. – green, sustainable design and recovery; sustainable product family design and recovery; trend mining design for product portfolio.

BIO

Prof. Harrison Kim is an Associate Professor in the Department of Industrial and Enterprise Systems Engineering and Donald Biggar Willett Faculty Scholar at the University of Illinois at Urbana-Champaign (UIUC). Kim's research focuses on a variety of areas of complex systems design and large-scale optimization. Kim's current research topics are renewable, hybrid energy conversion and distribution; user-centered sustainable product design; product design analytics; multidisciplinary, multilevel optimization; green product portfolio design. Application areas are energy, automotive, consumer electronics, heavy-duty equipment, national security, commercial/military system of systems, and information technology.

Dr. Kim has received numerous recognitions including the National Science Foundation's CAREER Award, Dean's Award in Excellence in Research, Best Paper Award in ASME Design for Manufacturing and Life Cycle Conference, and news media coverage in the USA Today and the Chicago Tribune. Harrison Kim earned his Ph.D. degree at the University of Michigan in 2001 in the area of Engineering System Design and Optimization in Mechanical Engineering under the supervision of Prof. Panos Papalambros. He joined the University of Illinois in 2005 after Business-IT consulting experience and postdoctoral training under Prof. Wei Chen at Northwestern University and has been leading the Enterprise Systems Optimization Lab.