

Keynote Speech III

Industrial Engineering faces the challenges of big data, little data, and design thinking



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Abstract

This talk will present and discuss the challenges and opportunities that industrial engineers face in the era of big data. The ability to separate signal and noise in the data-rich-information-poor environment would be the key, especially for industrial big data. Emerging issues include statistical process control for big data streams, and reliability and maintenance modeling with big data.

The second part of the talk will present and discuss the challenges and opportunities that industrial engineers face in the era of additive manufacturing (i.e., 3D printing), where there is little data due to its one-of-a-kind nature. For example, quality control techniques originated from mass production cannot be applied directly because such a small or single lot production does not have repeated measures of the same kind.

In the third part of the talk, I will brief the recent development of design thinking at HKUST, with the emphasis on technology meeting art.

Brief Bio

Prof. Fugee Tsung is Professor of the Department of Industrial Engineering and Logistics Management (IELM), Director of the Quality and Data Analytics Lab, at the Hong Kong University of Science & Technology (HKUST). He is a Fellow of the Institute of Industrial Engineers (IIE), Fellow of the American Society for Quality (ASQ), Academician of the International Academy for Quality (IAQ) and Fellow of the Hong Kong Institution of Engineers (HKIE). He is Editor-in-Chief of Journal of Quality Technology (JQT), Department Editor of the IIE Transactions, and Associate Editor of Technometrics. He has authored over 100 refereed journal publications, and is the winner of the Best Paper Award for the IIE Transactions in 2003 and 2009. He received both his MSc and PhD from the University of Michigan, Ann Arbor and his BSc from National Taiwan University. His research interests include quality engineering and management to manufacturing and service industries, statistical process control and monitoring, industrial statistics and data analytics.