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Janny Leung is Professor, Systems Engineering and Engineering Management Department, The Chinese University of Hong Kong. She obtained an S.B. degree in Applied Mathematics from Radcliffe College, a B.A. in Mathematics from Oxford University and a Ph.D. in Operations Research from the Massachusetts Institute of Technology. Before returning to Hong Kong, she was a faculty member at Yale University and the University of Arizona.

Her main research interests are combinatorial optimisation and logistics; she has investigated problems in public transit scheduling, supplier selection, material handling, routing and distribution planning, facility layout, production scheduling and baseball time-tabling. Her work has been published in *Mathematical Programming, Management Science, Operations Research, IIE Transactions, Discrete Optimization, EJOR, Journal of Combinatorial Optimization, INFOR, IEEE Transactions on Robotics and Automation, OR Letters, Discrete Applied Mathematics* and other journals. Her research has been supported by the Hong Kong Research Grants Council and the (US) National Science Foundation.

Currently, she serves on the editorial boards of *EURO Journal on Transportation and Logistics* (since 2011), *Transportation Science* (since 2009), *IIE Transactions* (since 2001), *Computers & Operations Research* (since 2005) and *Naval Research Logistics* (since 2001). She is an active member of INFORMS, having served as President of the Forum on Women in OR/MS (2002) and Chair of the Student Affairs Committee (2000-2004). She was the Scientific Programme Chair for the 19th Triennial Conference of the International Federation of Operational Research Societies (IFORS) held in Melbourne in 2011.

Workforce Scheduling: Models, Methods and Future Challenges

According to the historian Herodutus, one hundred thousand men worked for twenty year to build the Pyramid of Cheops at Giza, yet modern Eyptologists and scientists estimated the workforce to be 20 to 30 thousand. Clearly, optimal workforce scheduling can greatly improve efficiency!

One of the earliest mathematical models for workforce planning was Dantzig's (1954) set-covering model for staffing toll-booths. Since then, there has developed a plethora of models (combinatorial, dynamic, stochastic) and methodologies (exact, heuristic and metaheuristic) and software. Workforce scheduling models are in current use in all major industries, including construction, education, finance, health care, mining, production, retail trade, service and transportation. Looking towards the future, job requirementswill bemore multi-dimensional, requiring specific skill-sets and multiple work-locations. On the other hand, the trend is for the workforce to work more flexible hours. Matching the right person to the right job at the right time in the right place will be no easy task.

This talk will survey the models and methods for workforce scheduling developed over the past few decades, and discuss some of the challenges for workforce planning in the future.