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ABSTRACT
Analysis of airport and air cargo operations is commonly performed in isolation, sharing only simple information such as flight schedules. Systems theory and Systems methodology can enhance such analysis by considering all aspects of air operations. It provides the decision-maker with an improved understanding of the implication of policy decisions, resource allocations and infrastructure investment strategies, through the capture of emergent behaviours and interdependencies. For example, the term airport operations, initially reminds us of the thought of passengers being transported by aircraft. Deeper thinking would identify activities that affect passenger operations, such as baggage handling systems, aircraft maintenance, and passenger security. In reality, airport operations consist of numerous aspects, including; concourses, runways, airlines, fuel depots, cargo terminal operators, retail, parking, cleaning, catering and many interacting people including travellers, service providers and visitors. For the airport to function effectively, these numerous systems must work together. This talk will focus on new tools and methodologies that are required for model development and analysis. It will then focus on modelling, simulation and analysis of the airport operations, providing greater understanding of airport operation with an emphasis towards security.

About the Speaker: Saeid Nahavandi received his BSc (Hons), MSc and PhD in Control Engineering from Durham University, UK in 1985, 1986 and 1991 respectively. Saeid is an Alfred Deakin Professor and the Director for the Centre for Intelligent Systems Research at Deakin University in Australia. Professor Nahavandi is a Fellow member of IET, IEAust and Senior Member of IEEE and has published over 450 refereed papers and been awarded several competitive Australian Research Council (ARC) grants over the past five years. He received the Research collaboration / initiatives award from Japan (2000) and Prince & Princess of Wales Science Award in 1994. He won the title of Young Engineer of the Year Award in 1996 and holds two patents. In 2002 Professor Nahavandi served as a consultant to
the Jet Propulsion Lab (NASA) during his visit to JPL Labs. In 2006 he received the title of Alfred Deakin Professor, the highest honour at Deakin University for his contribution to fundamental research. Professor Nahavandi is the founder of the Centre for Intelligent Systems Research with 60 full time researchers at Deakin University. In modelling and simulation of complex systems he received awards from several organisations to focus on simulation based optimization of manufacturing processes, airport operations, logistics and distribution centres. He has carried out industry based research with several major international companies such as GM, Ford, Holden, Nissan, Bosch, Futuris, Boeing, Vestas just to name a few.

Professor Nahavandi has been the chairman of eight International conferences and the General Chair and Co-Chair for the World Manufacturing Congress series and the International Congress on Autonomous Intelligent Systems and IEEE SMC 2011. He is Co-Editors-in-Chief for IEEE Systems Journal.