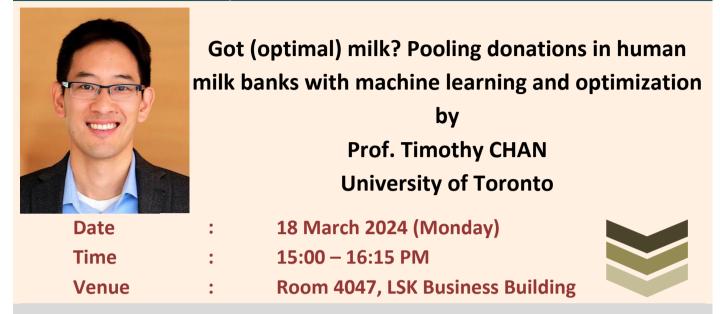# The Hong Kong University of Science and Technology

Dept of Information Systems, Business Statistics and Operations Management
Dept of Industrial Engineering & Decision Analytics
Joint Seminar Announcement

Got (optimal) milk? Pooling donations in human milk banks with machine learning and optimization

by
Prof. Timothy CHAN
University of Toronto

Date : **18 March 2024 (Monday)**
Time : **15:00 – 16:15 PM**
Venue : **Room 4047, LSK Business Building**

Abstract:

Human donor milk provides critical nutrition for the millions of infants that are born preterm each year. While the macronutrients in donor milk are critical to infant development, they vary by donation. In collaboration with Rogers Hixon Ontario Human Milk Bank, we developed a data-driven framework to pool multiple donations using machine learning and optimization. Over a one-year trial, our implementation yielded significantly higher macronutrient content than current pooling practices, with the proportion of pools meeting clinical fat and protein targets increasing by approximately 31%, with a 60% decrease in recipe creation time.

Bio:

Prof. Timothy Chan is the Associate Vice-President and Vice-Provost, Strategic Initiatives at the University of Toronto, the Canada Research Chair in Novel Optimization and Analytics in Health, a Professor in the department of Mechanical and Industrial Engineering, and a Senior Fellow of Massey College. His primary research interests are in operations research, optimization, and applied machine learning, with applications in healthcare, medicine, sustainability, and sports. He received his B.Sc. in Applied Mathematics from the University of British Columbia, and his Ph.D. in Operations Research from the Massachusetts Institute of Technology. Before coming to Toronto, he was an Associate in the Chicago office of McKinsey and Company, a global management consulting firm. During that time, he advised leading companies in the fields of medical device technology, travel and hospitality, telecommunications, and energy on issues of strategy, organization, technology and operations.

All interested are welcome!
Enquiries: Dept of ISOM