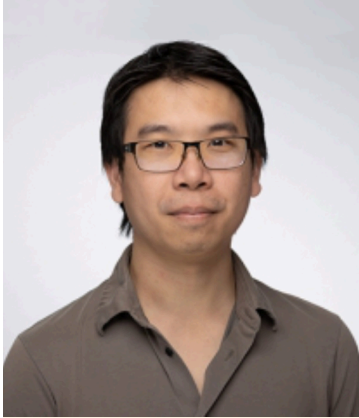


# THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Information Systems, Business Statistics and Operations Management

## IS SEMINAR ANNOUNCEMENT



### Addressing Fairness in Machine Learning Predictions: Strategic Best-Response Fair Discriminant Removed Algorithm

by

Prof. Warut KHERN-AM-NUAI  
Associate Professor, McGill University

DATE	21 November 2023 (Tuesday)
TIME	10:15 am - 11:45 am
VENUE	3/F Classroom 1 (Room 3001), LSK Business Building

### **ABSTRACT**

*Machine learning algorithms have become increasingly common and have affect many aspects of our life. However, because the objective of most of the standard, off-the-shelf machine learning algorithms is to maximize the prediction performance, the results produced by these algorithms could be discriminatory. The discrimination issue has gain the interest from both academic researchers and practitioners to develop machine learning algorithms that are fair. Even then, most such algorithms focus on decreasing the disparity in predictions of successful outcomes. However, these algorithms tend to ignore the strategic behavior of prediction subpopulations, resulting in disparity in the behavior of prediction subjects at equilibrium. One exception is those algorithms that use equalized odds as a fairness criterion which can decrease disparity in behavior. However, they cannot be used in many practical settings. We propose a new class of fair machine learning algorithms that alleviate disparity in prediction results, disparity in behavior of prediction subjects, and does not need to account for the sensitive variable explicitly. Our algorithm also complies with the notion of equal treatment and explainable AI, and can be applied to a wide variety of prediction tasks. We demonstrate the theoretical performance of our algorithm in the asymptotic scenario. In addition, we show the practical performance of the proposed algorithm by comparing its performance with that of other ordinary off-the-shelf algorithms and that of existing fair machine learning algorithms available in the IBM Fairness 360 suite.*

**Keywords:** *Machine learning, Discrimination, Fairness, Prediction*

### **BIOGRAPHY**

*Warut Khern-am-nuai is an Associate Professor of Information Systems at the Desautels Faculty of Management, McGill University. His research interests include platforms for online marketplaces, predictive analytics, and management information security. He received his Ph.D. in Management Information Systems from the Krannert School of Management, Purdue University in 2016. His research has appeared in premier academic journals, including Management Science, Information Systems Research, and MIS Quarterly, among others.*