

Seminar Series (Online Zoom Webinar): Frontiers of Big Data, AI, and Analytics

We are pleased to welcome **Professor Michael Littman** on **8 October 2021, 10:00AM–11:30AM** (Australian Eastern Standard Time (GMT+10)).

Discussion Theme: Telling, Inspiring, Demonstrating, and Explaining: Getting Machines To Do What We Want



Michael Littman

Royce Family Professor
of Teaching Excellence,
and Professor of
Computer Science at
Brown University

Abstract: These days, pretty much everything is a computer, resulting in devices that are powerful and flexible. But they are only useful if they carry out our wishes. Programming was invented as a mechanism for communicating the steps we want machines to carry out, but some tasks have proven difficult for even expert programmers to express. Machine learning provides a broader palette of techniques for conveying our intent to computers. The talk will cover several advances in machine learning from the perspective of how we can use them to better express our wishes to computers.

Short Bio: Professor Michael Littman studies machine learning and decision-making under uncertainty. He has earned multiple awards for teaching and his research has been recognized with three best-paper awards and three influential paper awards on topics such as reinforcement learning, probabilistic planning and automated crossword-puzzle solving. Littman has served on the editorial boards for the Journal of Machine Learning Research and the Journal of Artificial Intelligence Research. He was general chair of the International Conference on Machine Learning 2013 and program chair of the Association for the Advancement of Artificial Intelligence Conference 2013. He is co-director of Brown's Humanity Centered Robotics Initiative and a fellow of the Association for the Advancement of Artificial Intelligence and the Association for Computing Machinery. He was a 2020-2021 AAAS Leshner Leadership Institute Public Engagement Fellow in Artificial Intelligence.

To join this event through Zoom, register your attendance from this link by NOON 7 October 2021 (Zoom link is provided 1 day prior to the event)

To register: <https://www.eventbrite.com.au/e/frontiers-of-big-data-ai-and-analytics-tickets-170133161867>

Unleashing ideas and insights for harnessing the successful future of business & society!

Co-organizers

Tomohiro Ando (Melbourne Business School, University of Melbourne)

Robert Kohn (UNSW Business School, University of New South Wales)

Valentin Zelenyuk (School of Economics, University of Queensland)

Discussion theme: Stop explaining black box machine learning models for high stakes decisions and use interpretable models instead

Speaker: Professor Cynthia Rudin (Duke University)

Professor Rudin discussed reasons why we should use interpretable models, the most compelling of which is that for high stakes decisions, interpretable models do not seem to lose accuracy over black boxes -- in fact, she advocated that the opposite is true, where when we understand what the models are doing, we can troubleshoot them to ultimately gain accuracy.

Discussion theme: Can AI replace high-skilled workers?

Speaker: Professor Matthew Harding (University of California, Irvine)

Professor Harding discussed how Artificial Intelligence (AI) can learn and replicate subjective judgements of high-skilled workers, a possible enabler for improving business efficiency, as well as his perspectives on how big data, and AI can create value in business.

Discussion theme: Big Data and Context-based Marketing

Speaker: Professor Yasutora Watanabe (University of Tokyo)

Professor Watanabe discussed how big data can be an enabler for understanding customer behavior, particularly when contextual factors play an important role, as well as his perspectives on how analytics, big data, and AI can create value in business.

Discussion theme: Big Data and Analytics for Online Platform Market

Speaker: Professor Kosuke Uetake (Yale School of Management, Yale University)

Professor Uetake discussed how big data and analytics can help us to manage multi-sided online platform markets. Together with a high-level summary of key aspects in managing platform, practical recommendations and discussion were provided. Through big data analysis, Kosuke also shared new empirical findings on online platform management.

Discussion theme: Big Data, Machine Learning and AI for Preserving Integrity in Online Social Networks

Speaker: Professor Dr Alon Halevy (Director Facebook AI & Professor, University of Washington)

Professor Halevy discussed how big data, AI and analytics can help us to Preserving Integrity in Online Social Networks. Through a survey came from the perspective of having to combat a broad spectrum of integrity violations at Facebook, Alon discussed a potential and current challenges of machine learning, AI and state-of-art tools.

Discussion theme: The Impact of AI on Society in the Coming Years

Speaker: Dr Steve Shwartz

Steve explained how AI works and why we do not need to worry about evil robots trying to exterminate us. He then discussed how AI will impact society in many ways in the coming years. He explained why self-driving cars are not safe and should not be allowed on our roads. He also discussed AI-enhanced weapons of war, threats to our privacy, how AI can increase discrimination, and the impact of AI on employment.

Discussion theme: From COVID-19 Testing to Election Prediction: How Small Are Our Big Data?

Speaker: Professor Xiao-Li Meng (Harvard University)

The term "Big Data" emphasizes data quantity, not quality. What will be the effective sample size when we take into account the deterioration of data quality because of, for example, the selection bias in COVID-19 testing or the non-response bias in 2016 US Election polling results? This talk provides an answer to such questions, based on the concept of data defect index (ddi) developed in Meng (2018) [Statistical paradises and paradoxes in big data \(I\): Law of large populations, bigdata paradox, and the 2016 US presidential election](#). Annals of Applied Statistics, 685-726. He also discussed briefly the application of ddi for 2020 US Election, as reported in Isakov and Kuriwaki (2020) [Towards Principled Unskewing: Viewing 2020 Election Polls Through a Corrective Lens from 2016](#). Harvard Data Science Review.
