

Big Data Analytics

Abstract

Big data is a new driver of the world economic and societal changes. The world's data collection is reaching a tipping point for major technological changes that can bring new ways in decision making, managing our health, cities, finance and education. While the data complexities are increasing including data's volume, variety, velocity and veracity, the real impact hinges on our ability to uncover the 'value' in the data through Big Data Analytics technologies. Big Data Analytics poses a grand challenge on the design of highly scalable algorithms and systems to integrate the data and uncover large hidden values from datasets that are diverse, complex, and of a massive scale. Potential breakthroughs include new algorithms, methodologies, systems and applications in Big Data Analytics that discover useful and hidden knowledge from the Big Data efficiently and effectively.

Big Data Analytics is relevant to Hong Kong as it moves towards a digital economy and society. Hong Kong is already among the best in the world in Big Data Analytics, taking up such leadership positions as chairs and editor in chiefs of important conferences and journals in Big Data related areas. But to maintain such leadership positions, Hong Kong universities, government and industry must act quickly in addressing a number of major challenges. These challenges includes "foundations," which concerns new algorithms, theory and methodologies in knowledge discovery from large amounts of data and "systems and applications," which concerns innovative applications and systems useful for supporting Big Data practices. Big data analytics must also be team effort cutting across academic institutions, government and society and industry, and by researchers from multiple disciplines including computer science and engineering, health, data science and social and policy areas.