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Topic: Online Learning for Big Data Applications

ABSTRACT. Online learning investigates sequential decisions with uncertainty, in which learning models generally are updated without reusing training samples. As data generated from sciences, business, governments, etc. are reaching petabyte or even Exabyte, and perform other characteristics (such as non-stationarity and imbalance), theories, models, and applications in online learning are becoming important in machine learning to process a large amount of streaming data effectively and efficiently. Recently, a number of online learning algorithms have been proposed to tackle sequential decisions with uncertainty, especially for cases of big data volume, non-stationary and/or highly imbalanced data. In this talk, we focus on some new developments of online learning technologies in both theory and applications. Relevant topics including Multi-Armed Bandits (MAB), online learning in stochastic settings, online learning with contextual information, and unsupervised online hashing, will be discussed. Moreover, some of our recent works such as combinatorial exploration of MAB, locality-sensitive linear bandits, online learning with imbalanced data, and faster online hashing, will also be presented to demonstrate how online learning approaches can be effectively applied to big data.

Biodata:

Irwin King's research interests include machine learning, social computing, web intelligence, data mining, and multimedia information processing. In these research areas, he has over 300 technical publications in journals and conferences. In addition, he has contributed over 30 book chapters and edited volumes. He is also an Associate Editor of the ACM Transactions on Knowledge Discovery from Data (ACM TKDD), Journal of Neural Networks, and a former Associate Editor of the IEEE Transactions on Neural Networks (TNN). Prof. King is Associate Dean (Education), Faculty of Engineering and Professor at the Department of Computer Science and Engineering, The Chinese University of Hong Kong. He is also Director of the Shenzhen Key Laboratory of Rich Media and Big Data. He has also worked at AT&T Labs Research and taught courses at UC Berkeley during his sabbatical. He received his B.Sc. degree in Engineering and Applied Science from California Institute of Technology, Pasadena and his M.Sc. and Ph.D. degree in Computer Science from the University of Southern California, Los Angeles. Recently, Prof. King has been an evangelist in the use of education technologies in eLearning for the betterment of teaching and learning.