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Topic: **Randomized Algorithms for Efficient Learning**

**ABSTRACT.** As data routinely collected from social science, business, education, biology, etc. are reaching petabyte or even exabyte at an alarming rate, developing approaches for enabling learning with big data have been critically important. Recently, randomized algorithms stemming from numerical linear algebra have attracted much attention, and these randomized approaches may produce approximate solutions to certain large problems very efficiently. In this talk, we offer a high-level introduction to randomized algorithms and a set of associated applications including kernel learning, regression, clustering, deep learning, etc. Moreover, some of our recent work such as randomized algorithms for covariance matrix estimation and unsupervised online hashing, will also be presented to demonstrate how randomized algorithms can effectively handle large-scale machine learning with 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.