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报告

The Quest for Powerful and Compact Machine Learning Models

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讲者介绍 Biography

James Kwok is a Professor in the Department of Computer Science and Engineering, Hong Kong University of Science and Technology. He received his B.Sc. degree in Electrical and Electronic Engineering from the University of Hong Kong and his Ph.D. degree in computer science from the Hong Kong University of Science and Technology. Prof. Kwok served/is serving as an Associate Editor for the IEEE Transactions on Neural Networks and Learning Systems, Neurocomputing and the International Journal of Data Science and Analytics. He has also served as Program Co-chair of a number of international conferences, and as Area Chairs in major machine learning and AI conferences. He is an IEEE Fellow.

报告摘要 Abstract

Machine learning (ML) has found successful applications in diverse areas of science and engineering, and is now an indispensable tool in AI. Though powerful, ML models can be computationally expensive. In this talk, I will discuss recent advances that try to alleviate these problems. On the highly popular deep learning models, we use quantization to significantly reduce the network size without sacrificing performance, and also develop efficient algorithms for training on single machines and distributed platforms. These techniques are also extended for use in a collaborative federated learning environment. Similarly, non-deep learning models can also be made more time- and sample-efficient by utilizing structures in the application problems. Finally, we explore the automatic search for these powerful but compact ML models.

有兴趣合作之项目 Interested topics for future collaboration

Deep learning,
AutoML,
Continual learning,
Distributed learning,
Reinforcement learning,
Machine learning theory and applications in general