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Distinguished Seminar Series on Data Science & Artificial Intelligence

Data Management for Effective and Efficient Deep Learning

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Hong Kong

14 September 2021 (Tue)
14:30 - 15:30 (HKT, UTC+8)
Online via Zoom
English
Please register at https://polyu.hk/ZpzDr or scan the QR code

All are welcome!

Abstract

In recent years, deep learning (DL) has significantly penetrated and has been widely adopted in various fields of application, including facial recognition, strategy games (AlphaGo and Texas hold'em) and question answering. However, the effectiveness of the models and efficiency of the training process strongly depend on how well the associated data is managed. It is very challenging to train an effective deep learning-based image classifier without properly labelled training data. Furthermore, training efficiency is severely affected by a large amount of training data, complex structures of the models and tones of hyper parameters. A lack of validation for result data and explanation also seriously affect the applicability of trained models. In this talk, I will discuss three issues on how to manage data for effective and efficient deep learning: 1) how to prepare data for effective DL, which includes data extraction and integration as well as data labelling; 2) how to optimize DL training, including data compression and computation graph optimization; and 3) how to conduct explanation to make the model robust and transparent. Some future work will be highlighted at the end.

About the Speaker

Lei Chen, Chair Professor in the Department of Computer Science and Engineering at Hong Kong University of Science and Technology (HKUST) and Head of Data Science and Analytic Thrust at HKUST (GZ), Fellow of the IEEE, and Distinguished Scientist of the ACM. Currently, Prof. Chen serves as the director of Big Data Institute at HKUST and director of HKUST MOE/MSRA Information Technology Key Laboratory. Prof. Chen's research interests include Data-driven AI, knowledge graphs, blockchains, data privacy, crowdsourcing, spatial and temporal databases and query optimization on large graphs and probabilistic databases. He received his BS degree in computer science and engineering from Tianjin University, Tianjin, China, MA degree from Asian Institute of Technology, Bangkok, Thailand, and PhD in computer science from the University of Waterloo, Canada. Prof. Chen received the SIGMOD Test-of-Time Award in 2015. The system developed by Prof. Chen's team won the excellent demonstration award in VLDB 2014. Prof. Chen had served as VLDB 2019 PC Co-chair. Currently, Prof. Chen serves as Co-Editor-in-Chief of VLDB Journal, associate editor-in-chief of IEEE Transaction on Data and Knowledge Engineering and an executive member of the VLDB endowment.