

SCHOOL OF DATA SCIENCE

SEMINAR SERIES

Big Data Processing and Applications: from Graph Perspectives

Date: 12 September 2018 (Wednesday)
Time: 2:30pm to 3:30pm
Venue: P7510, 7/F, Yeung Kin Man Academic Building (YEUNG),
City University of Hong Kong

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Guest Speaker's profile

Dr. Zhang Zhiwei is a research assistant professor in the Department of Computer Science, Hong Kong Baptist University. Before that, he got his Ph.D. degree and worked as postdoctoral researcher in Systems Engineering & Engineering Management, The Chinese University of Hong Kong. His research interests lie in the big graph algorithms, graph systems, knowledge graph applications, etc. His works have been supported by three grants, including two from Hong Kong Research Grants Council and published in top conferences and journals as SIGMOD, VLDBJ, ICDE, etc.



Abstract:

The graph model has been widely used to model complex relationships among entities, such as social networks, road networks, supply chain networks etc. As more and more data records are collected, these graphs become quite large and grow rapidly. On the other hand, many applications could be supported from the graph operations, but users are not able to know the understanding structure of the graph with millions of nodes. Thus, the applications and processing of big graphs is an important task, but very challenging.

In this seminar, we will discuss some our recent and future works about the big graph processing and applications. Our works mainly focus on graph algorithms, knowledge graph search, and critical entity exploration problems. From the algorithmic aspect, we investigate the contract & expand framework to store and process the big graph. For many basic operations, such as depth-first search, they cannot perform quite well on large graphs. Here, we talk about how to generate a part of the result from a smaller graph and these sub-answers can be combined as one answer for the original graph. For the knowledge graph search problem, each topic is related to only a small subgraph compared with the large knowledge graph size. In order to find such small subgraphs from a knowledge graph, we propose the keyword-centric queries as well as the corresponding efficient solutions. For the critical entity exploration in labeled graphs, it helps a lot for users because users cannot explore a graph with millions of nodes. For this problem, we will discuss from both the effectiveness and the efficiency directions.