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Computer Science : Big Data

Shao, Y., Cui, B., Chen, L.

Large-scale Graph Analysis: System, Algorithm and Optimization

- Shares techniques for optimizing large-scale graph algorithms in distributed settings
- Introduces three optimized graph analysis algorithms (i.e., subgraph enumeration, subgraph detection and graph extraction) for large graphs
- Presents a distributed graph-computing system that can intelligently utilize high-quality graph partitions to boost efficiency

This book introduces readers to a workload-aware methodology for large-scale graph algorithm optimization in graph-computing systems, and proposes several optimization techniques that can enable these systems to handle advanced graph algorithms efficiently. More concretely, it proposes a workload-aware cost model to guide the development of high-performance algorithms. On the basis of the cost model, the book subsequently presents a system-level optimization resulting in a partition-aware graph-computing engine, PAGE. In addition, it presents three efficient and scalable advanced graph algorithms – the subgraph enumeration, cohesive subgraph detection, and graph extraction algorithms. This book offers a valuable reference guide for junior researchers, covering the latest advances in large-scale graph analysis; and for senior researchers, sharing state-of-the-art solutions based on advanced graph algorithms. In addition, all readers will find a workload-aware methodology for designing efficient large-scale graph algorithms.

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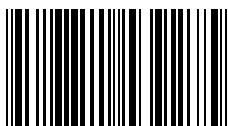
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