



Yingxia Shao, Bin Cui, Lei Chen

Large-scale Graph Analysis: System, Algorithm and Optimization

Series: Big Data Management

- 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.

1st ed. 2020, XIII, 146 p. 78 illus., 30 illus. in color.

Printed book

Hardcover

109,99 € | £99.99 | \$139.99

^[1]117,69 € (D) | 120,99 € (A) | CHF 130,00

eBook

93,08 € | £79.50 | \$109.00

^[2]93,08 € (D) | 93,08 € (A) | CHF 104,00

Available from your library or
[springer.com/shop](https://www.springer.com/shop)

MyCopy ^[3]

Printed eBook for just

€ | \$ 24.99

[springer.com/mycopy](https://www.springer.com/mycopy)

Order online at [springer.com](https://www.springer.com) / or for the Americas call (toll free) 1-800-SPRINGER / or email us at: customerservice@springernature.com. / For outside the Americas call +49 (0) 6221-345-4301 / or email us at: customerservice@springernature.com.

The first € price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with [1] include VAT for books; the €(D) includes 7% for Germany, the €(A) includes 10% for Austria. Prices indicated with [2] include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted. [3] No discount for MyCopy.

