

Fully homomorphic encryption in real world applications

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20508880&lokasi=lokal>

Abstrak

This book explores the latest developments in fully homomorphic encryption (FHE), an effective means of performing arbitrary operations on encrypted data before storing it in the cloud. The book begins by addressing perennial problems like sorting and searching through FHE data, followed by a detailed discussion of the basic components of any algorithm and adapting them to handle FHE data. In turn, the book focuses on algorithms in both non-recursive and recursive versions and discusses their realizations and challenges while operating in the FHE domain on existing unencrypted processors. It highlights potential complications and proposes solutions for encrypted database design with complex queries, including the basic design details of an encrypted processor architecture to support FHE operations in real-world applications.