

Foreword

Today, the world is witnessing exponential growth in computing devices. This growth in use has led to a major increase in electricity consumption worldwide, which in turn has resulted in increased demands for usable energy resources and increased emissions of carbon and other pollutants. Currently, 3% of the world's energy supply is consumed by computing devices, accounting for 3% of the CO₂ emissions worldwide. These numbers are forecast to continue to increase as the use of computing devices becomes even more pervasive. Due to the ongoing challenges associated with providing adequate energy supplies and with energy generation's environmental impact, the greening of energy supplies, the adoption of renewable materials of construction, and the reduction in energy consumption are now increasingly important and should be a key goal for all who research and design computing devices.

This book is a valuable addition to academic and research libraries and a solid resource for engineers, researchers, scientists, students, and educators involved in information technology, computer science, electrical engineering, and mechanical engineering. It will also be useful reading for anyone interested in learning more about the growing field of Green Computing.

The book is a collection of current cutting-edge research techniques, trends, and practical applications in the field of Green Computing. In the books' chapters, you will find descriptions of state-of-the art research projects on the many aspects of power-aware computing, such as components, software creation and production, system levels, networking, and data centers. The topics address different areas, including data centers, networking, communications, software systems, and computer and component design.

The goal of the book was to compile research contributions, constructive debates, and the results of prior case studies related to energy conservation and carbon emission reduction for computing while also offering future research directions and positive steps that can be taken to reduce energy consumption, and therefore minimize carbon emissions, lessen pollution, and slow climate change.

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