ADVANCES IN COMPUTING TECHNIQUES

Algorithms, Databases and Parallel Processing

Editors

H. Imai
W. F. Wong
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World Scientific

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FOREWORD

This volume contains a collection of twenty papers presented at a JSPS-NUS Seminar on Computing held at National University of Singapore during 5–7 December 1994, as part of the Japan-Singapore Scientific Cooperation Programme sponsored by the Japan Society for the Promotion of Science (JSPS). This programme has been run for ten years. To celebrate the establishments for the first ten years as well as to serve as the landmark for future joint research, this seminar was proposed by Professor Akinori Yonezawa of the University of Tokyo and Professor Chong Chi Tat of National University of Singapore. We are deeply grateful to JSPS for supporting this seminar, especially for facilitating the visits of thirteen university professors from Japan to deliver talks. Definitely the seminar is a great success, and our joint research will be performed actively in wider areas in computer science in the future. The 20 papers in this book is divided into 3 sections, namely, Algorithms, Databases and Parallel Processing.

In the Algorithms section, new results are reported for solving various algorithmic problems such as decomposition of partially defined Boolean functions, optimal partitioning of rectilinear layout in VLSI, optimal edge-ranking of trees, and ordered binary decision diagrams. In addition, there are two parallel algorithm papers addressing the problem of image segmentation and sorting. You will also find a paper which reports on the latest work as well as the current algorithmic issues facing the human genome project.

The Database section begins with a paper describing the VIEW project which aims to change the way offices and classrooms work. In this section, you will also find a report on the latest development of a database supercomputer, as well as the latest research results in object-oriented databases and multidatabases.

The first paper in the Parallel Processing section is a report on the latest massively parallel processing project funded by the Japanese Ministry of Education. This is followed by a collection of research papers and reports on the development of hardware and software for parallel processing. On the hardware aspect, three parallel architectures for volume rendering, vision and doing classical many-body simulations are described. The software papers describe developments in parallel programming languages as well as performance visualization of parallel systems.

In short, this book reports on the latest development and outline the research directions of researchers in the two countries.

Imai, H., Wong, W. F. and Loe, K. F.
August 22, 1995

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